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ABSTRACT

During the hearings of the Subcommittee on Migratory Labor, various statements prepared for the Subcommittee on Monopoly of the Senate Select Committee on Small Business hearing on the role of giant corporations in the American and world economies were included. This appendix includes some of those statements. The statements given cover: (1) corporate secrecy and agribusiness; (2) research into the effects of corporate farming on the quality of rural community life; (3) the problem of the relationship between large-scale and corporate firms in agriculture and the rural community including the persons employed in agriculture; (4) needed research into the effects of large-scale farm and business firms on rural America; and (5) corporate accountability and the family farm. The appendix also includes the following articles and publications: (1) "A Profile of California Agribusiness," (2) "Arvin and Dinuba Revisited: A New Look at Community Structure and the effects of Scale of Farm OPerations," (3) "Corporations Having Agricultural Operations," (4) "Economies of Size in Farming," (5) "Our 31,000 Largest Farms," and (6) "Who Will Control U.S. Agriculture? Policies Affecting the Organizational Structure of U.S. Agriculture." (NQ)

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ED 118 328

FARMWORKERS IN RURAL AMERICA, 1971-1972

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HEARINGS

BEFORE THE

SUBCOMMITTEE ON MIGRATORY LABOR

OF THE

COMMITTEE ON
LABOR AND PUBLIC WELFARE
UNITED STATES SENATE

NINETY-SECOND CONGRESS

FIRST AND SECOND SESSIONS

APPENDIX

PART 5A

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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FORMAT OF HEARINGS ON FARMWORKERS IN RURAL AMERICA

The Subcommittee on Migratory Labor conducted public hearings in Washington, D.C., and in San Francisco and Fresno, Calif., during the 92d Congress on "Farmworkers in Rural America." These hearings are contained in the following parts:

Subject matter	*Hearings dates*
Part 1: Farmworkers in Rural Poverty	July 22, September 21 and 22, 1971.
Part 2: Who Owns the Land?	November 5, 1971.
Part 3: Land Ownership, Use and Distribution:	
A. San Francisco	January 11, 1972.
B. Fresno	January 12, 1972.
C. San Francisco	January 13, 1972.
Part 4: Role of Land-Grant Colleges:	
A	June 19, 1972.
B	June 20, 1972.
Part 5: Appendix: A and B.	

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Greene, Sheldon L., National Coalition for Land Reform, prepared statement, March 2, 1972 ---------- 3387

Nelson, Hon. Gaylord, a U.S. Senator from the State of Wisconsin, opening statement, March 1, 1972 ---------- 3240

Raup, Philip M., professor, Department of Agricultural and Applied Economics, University of Minnesota, St. Paul, Minn., prepared statement, March 1, 1972 ---------- 3345

Rodefeld, Richard D., profesor, Department of Sociology, Michigan State University, East Lansing, Mich., prepared statement, March 1, 1972 ---------- 3243

Wilkening, Eugene A., professor, University of Wisconsin, Madison, Wis., prepared statement, March 1, 1972 ---------- 3329

Wimmer, Ed, vice president, public relations director National Federation of Independent Business, Inc., prepared statement, March 2, 1972 ---------- 3365

ADDITIONAL INFORMATION

Articles, publications, etc.:

"A Profile of California Agribusiness," Agribusiness Accountability Project, Washington, D.C., January 1972 ---------- 3055

"Arvin and Dinuba Revisited: A New Look at Community Structure and the Effects of Scale of Farm Operations," by Bruce L. LaRose, graduate student, Department of Geography, University of Minnesota ---------- 3355

"Corporations Having Agricultural Operations," Agricultural Economic Report No. 156, April 1969, Economic Research Service, USDA ---------- 3137

"Economies of Size in Farming," Agricultural Economic Report No. 107, February 1967, Economic Research Service, USDA ---------- 3467

"Our 31,000 Largest Farms," Agricultural Economic Report No. 175, March 1970, Economic Research Service, USDA ---------- 3170

"Who Will Control U.S. Agriculture?", policies affecting the organizational structure of U.S. agriculture, University of Illinois special publication No. 27, August 1972 ---------- 3409

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AGRIBUSINESS ACCOUNTABILITY PROJECT
1000 Wisconsin Avenue, N.W.
Washington, D.C. 20007

A Profile of California Agribusiness

January 11, 1972

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Preface

This "Profile of California Agribusiness" published by the Agribusiness Accountability Project seeks to simply show the general wide spread involvement by all segments of American big business in agriculture.

No effort has been made here to list all of the large corporations who are involved in agribusiness. We desire merely to show that the once clear line between the rural farmer and the urban big businessman has now become almost indistinguishable.

All financial figures used are for 1970 (unless otherwise specifically noted). The numbers which appear in parenthesis opposite Market Value, Revenues, Assets and Profit signify that corporations respective place in the national rankings according to Forbes Dimensions of American Business Annual Directory (May 15, 1971).

A generous portion of the information used in preparing this profile was drawn from the public files of various government regulatory agencies, such as the Securities and Exchange Commission, the Federal Trade Commission and the Interstate Commerce Commission,

Annual company stockholder reports and proxy statements were examined closely and various trade publications and major newspapers and magazines like the Wall Street Journal and the Los Angeles Times were read closely each day.

This profile is part of the continuing effort by the Agribusiness Accountability Project to not only document the nature and extent of the role in big business in rural America but make these corporations more accountable to the public they should serve.

- A.V. Krebs
Staff Researcher
January 7, 1972

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ANDERSON, CLAYTON & COMPANY

P.O. Box 2538, Houston, Texas 77001

Financial Profile

Market Value:		$117,629,000
Revenues:	(272)	$639,077,000
Assets:		$345,956,000
Net Profit:		$ 12,373,000

Chief Executive:	T.J. Barlow
Total Remuneration:	$143,000
Value of Shares Owned/Controlled By:	$302,000

Physical Profile

No. of Employees: 18,000
Owns 52,000 acres in the San Joaquin Valley (30,738 acres located in the Westlands Water District
Divisions and subsidiaries - see following page

Operation Notes

Agribusiness Income - 68% of total
In 1969 Vista del Llano Farms leased 7,180.51 acres in Fresno County from the Southern Pacific Company.
In 1970 Vista del Llano Farms leased 7,180.19 acres in Fresno County from the Southern Pacific Company.

ASCS Subsidy Payments:

1970	$1,105,762
1969	$ 778,624
1968	$ 745,647
1967	$ ....
1966	$ 622,840
	$3,252,873

FARMING

Unfavorable weather conditions adversely affecting cotton, safflower and alfalfa yields prevented the Vista del Llano Farm operation in the San Joaquin Valley of California from achieving anticipated results for the year. However, returns proved substantially better than in recent years, with further improvements expected in 1972.

As with most commercial farming operations in California, and many elsewhere, it has become extremely difficult to operate this farm profitably because the large and frequent increases in labor, water, tax, and other costs cannot be fully offset by increases in prices of farm products, most of which are frequently in surplus supply. These conditions have in turn depressed sales values for the land, which is currently well suited only to farming operations. Nevertheless, considerable progress is being made in continuing efforts to convert various segments of this large and scattered farming activity to an adequately profitable basis.

- 1970 Annual Report

Interconnecting Directorates

Johns Hopkins Hospital; Austin, Dabney, Northrop & Garwood (law); Fulbright, Crooker & Jaworski (law); Morgan Stanley & Co.; Rotan, Mosle-Dallas Union Inc.; Riviana Foods Inc., among others.

Anderson Clayton Foods

One Main Place, Dallas, Texas 75250

Grocery Products

Margarines, salad dressings, shortenings, salad oils, cheeses and meats

Food Service Products

Margarines, salad dressings, shortenings and edible oils

Specialty Formulated Products for Food Processing

Coating fats, flavored fats, beverage fats, stabilizers and emulsifiers

Margarines: Chiffon, Flair, Glen Eden, Golden Mist, Dresden, Hollandale, Log Cabin, Meadolake, Velvet, Accolade, Restaurant Pak

Salad Dressings: Seven Seas

Salad Oils: Mrs. Tucker's, Jewel, Unique

Shortenings: Creamy, Mrs. Tucker's, Velvet, Golden Flex, Liquid-Fry, [illegible], Wave, EZ Fix, [illegible], Southern Queen, Mix-Ezy, Hytone, Frye

Cheeses & Meats: J. S. Hoffman products

Anderson Clayton

Industrial Division

100 W. Clarendon Ave.,
Phoenix, Arizona 85013

Vegetable Oilseed Crushing
Vegetable Oil Refining
Cotton Ginning
Cotton Compressing
Crop Financing

Paymaster Oil Mill Co.
San Joaquin Cotton Oil Co.
Western Compress Company
Western Cotton Products Co.

Farming
Vista del Llano Farms

RANGER PAN AMERICAN
INSURANCE COMPANIES

P. O. Box 2807, Houston, Texas 77001

Property-Casualty

Special commercial and industrial risks, automobile-special risks, institutional properties, liquid butane-propane gas dealers, garages and oil marketers, anhydrous ammonia [illegible], gas utility risks, aviation insurance and workmen's compensation

Life, Accident and Health

Whole life and term, group, variable annuities, pension plans and self-employed retirement income plans

Ranger Insurance Company
  Ranger Lloyds
  Ranger County Mutual Insurance Co.
  Ranger Insurance Exchange

Pan American Insurance Company
  Pan American Fire & Casualty Co.
  Pan American Thrift Insurance Co.

Ranger Insurance Managers, Inc.
  Ranger General Agency
  Ranger-Allied Underwriters
  Premium Budget Agency

Ranger National Life Insurance Company

Long Reach MANUFACTURING

12300 Amelia Drive, Houston, Texas 77045

Hydraulically-Operated Lift Truck Clamps and Attachments

Carton clamps, rotating clamps, forging clamps, cotton bale clamps, drum dumper clamps, concrete pipe clamps, paper roll clamps, load inverters, load stabilizers, narrow aisle attachments, tire handling attachments, push/pull load attachments.

Special Materials-Handling Products

Load transfer and pallet stacker
Bag transfer and pallet stacker

Custom Engineered Products

Anderson Clayton

Agricultural Products Division

774 Cline Street, Abilene, Texas 79602

Corn, cotton, sorghum and alfalfa planting seed

Tomco
Paymaster

Cattle, poultry, sheep, swine and horse feeds

Paymaster
Superior
Hi-Lo

GULF ATLANTIC

DISTRIBUTION SERVICES

P.O. Box 2588 Houston, Texas 77001

General Merchandise Warehousing
Cotton Compressing and Warehousing
Dry Bulk Handling
Household Goods Moving and Storage
Trucking

Gulf Atlantic Warehouse Co.
Great Southwest Warehouses, Inc.
Seattle Transfer & Storage Company

Allied Van Lines Agent

Anderson Clayton

Coffee Division

120 Wall Street,
New York, New York 10005

Coffee agents in consuming and producing markets throughout the world

Purchase and sale of green coffee for U. S. market—South American, Central American and African Growths

---

Anderson Clayton Cotton

2 South Front Street,
Memphis, Tennessee 38103

Purchase of Raw Cotton—U. S. Growths

Sale of Raw Cotton—U. S. Growths

Buying offices in Arizona, California, Missouri, Tennessee and Texas

Domestic sales offices in Arizona, California, Georgia, South Carolina, Tennessee and agents in free countries of Europe and Asia

---

Anderson Clayton
BRAZIL
Industria e Comercio
Rua Formosa 367, Sao Paulo, Brazil

Consumer and Institutional Foods
  Margarines, edible oils, shortenings, peanut butter and speciality products
Vegetable Oilseed Processing
  Seed crushing and oil refining
Cotton Ginning and Compressing
Warehousing and Distribution
  Cotton, coffee and general merchandise
Formula Feeds
  Animal and poultry
Commodity Merchandising
  Cotton, coffee and vegetable oilseed products

ACCOSA MEXICO

Paseo de la Reforma #51
Mexico 1, D.F., Mexico

Consumer and Institutional Foods
  Margarines, edible oils, shortenings, peanut butter, prepared mixes, gelatins, candies and specialty products
Vegetable Oilseed Processing
  Seed crushing and oil refining
Cotton Ginning and Crop Financing
Formula Feeds
  Animal and poultry
Planting Seeds
  Corn, cotton and peanut seeds
Commodity Merchandising
  Cotton, peanuts and vegetable oilseed products
Insecticides

ACCOSA PERU

Lampa 946, Lima, Peru

Consumer Foods
  Edible oils, shortenings and roasted coffee
Warehousing and Distribution
  General merchandise, coffee and cotton [illegible]
Commodity Merchandising
  Coffee and vegetable oilseed products

A. Aristizabal & Cia S.A.
COLOMBIA

Cra. 10/14-33 Oficina 711,
Bogota, Colombia

Vehicle and Tractor Farm Distribution
  Automotive and truck [illegible]

Coffee Processing and Exporting

ACCOSA SWITZERLAND

10 Place de la Gare, Lausanne, Switzerland

European Financial Activities

Commodity Merchandising
  Cotton, coffee and vegetable oilseed products

ARDEN-MAYFAIR, INC.

2500 South Garfield Avenue, Los Angeles, California 90054

Financial Profile

Market Value: $ 20,184,000
Revenues: (276) $630,000,000
Assets: $135,000,000
Net Profit: $ 2,823,000

Chief Executive: A.J. Crosson
Total Remuneration: $75,000
Value of Shares Owned/Controlled By: Not Available

12,317 stockholders and 2,784,606 common shares of stock outstanding

Physical Profile

No. of Employees: 10,400
222 retail grocery stores and 41 plants and warehouses

Divisions and subsidiaries: Gelsen's Market Division, Richards Market, Market Confections Inc., S & A Discount Foods, Mayfair Markets, A & M Food Services, Farrel's Ice Cream Parlour, GPS (manufacturers and sells water treatment equipment and pool chemicals), Arden Dairy Division, Ardco Inc., Camellia Diced Cream Co., Enterprise Equipment Inc., Artco Printers and Litho, A & M Notes Inc., Richards Lido, Inc. and A-M Properties.

Recently acquired Telautograph Corp. (message and transmission equipment) which at the time owned 300,900 shares of Arden-Mayfair

Operation Notes

Groceries are purchased and delivered from "independent wholesalers."

On April 28, 1970 the Federal Trade Commission tentatively accepted a consent order that prohibits Arden-Mayfair, Inc. from accepting allegedly illegal brokerage services on purchases of grocery products. Besides A-M the order named Chambosse Co. (Los Alamitos, Calif.) and Halsey K. Chambosse, an official of the brokerage co. The FTC claimed A-M was using Chambosse as an agent in purchasing of private label grocery products from various sellers. A-M receives valuable brokerage services from Chambosse without paying any brokerage. (Details Wall Street Journal, April 28, 1970.

Interconnecting Directorates

Mitchell, Silberberg & Knupp (law); Valley National Bank (Phoenix, Arizona); Rhoten, Rhoten & Speerstra (law); Northrop Corp., among others.

BANGOR PUNTA CORPORATION

One Greenwich Plaza, Greenwich, Connecticut 06830

Financial Profile

Market Value: $ 32,240,000
Revenues: (468) $342,186,000
Assets: $347,527,000
Net Profits: $ -470,000

Chief Executive: D.W. Wallace
Total Remuneration: $100,000
Value of Shares Owned/Controlled By: $274,000 (common stock)

Physical Profile

No. of Employees: 9,000

Subsidiaries: Piper Aircraft Corp., Piper Aircraft International, Balboa Motor Homes, Duo, Featherweight Corp., Jensen Marine, The Kinney Co., The Luhrs Co., O'Day, Ranger Yachts, Rent-A-Cruise of America, Seagoing Boats, Starcraft Co., Yankee Motor Co., O & M Manufacturing Co., Waukesha Motor Co., Waukesha Motor Western, Ltd., Producers Cotton Oil Co. (see below), General Ordinance Equipment Corp., The Identi-Kit Co., The Lake Erie Chemical Co., Pacific Technica, Smith & Wesson, Smith & Wesson-Fiocchi, Smith & Wesson Leather Co., Smith & Wesson Pyrotechnics, Inc., Smith & Wesson Security Services, Stephenson Co., Barker Manufacturing Co., Bartlett-Snow, FECO, Jetstream Systems Co., Pameco-Aire, and five international companies.

Operation Notes

Agricultural Sales
Contribution $40.7 million of the total $293.6 million
Agricultural Profit
Contribution $ 1.3 million of the total $14.8 million

Producers Cotton Oil Company (South Lake Farms)
- owns 60,000 acres and leases another 40,000 acres in the San Joaquin Valley and Arizona.
- integrated growing, processing, warehousing and merchandising of cotton and agricultural produce; vegetable oil and animal feed processing and manufacturing.
- properties and depreciation and subsidiary - see following page

Interconnecting Directorates

Bank of America N.T. & S.A.; Lone Star Industries; United Brands, among others.

(3) Properties and Depreciation:

Properties and related accumulated depreciation at September 30, 1970 consist of:

	Properties, at Cost	Annual Rates of Depreciation	Accumulated Depreciation
Land	$ 3,487,943	–	–
Farm Lands	11,755,717	–	–
Building and site improvements	30,699,136	2.5 to 10%	9,759,763
Machinery and Equipment	74,581,422	5½ to 33⅓ %	48,109,826
Leaseholds	2,823,895	Term of Lease	995,081
	$123,328,1[illegible]3		$58,864,670

Farm lands and other properties of Producers Cotton Oil Company, a consolidated subsidiary, are substantially pledged under deeds of trust and mortgages to secure certain insurance company loans and bank loans.

The aggregate amount of depreciation charged for the years ended September 30, 1970 and 1969 was $6,636,753 and $6,305,120, respectively.

The "excess cost over net assets of companies acquired" is considered to have a continuing value over an indefinite period and therefore is not being amortized.

Producers properties are an asset believed to have a market value now—and more so in the future—substantially in excess of our $12 million carrying cost. Proposals are being readied on ways to improve returns from this land. The University of California has completed the first phase of a preliminary study of the San Joaquin Valley's west side, indicating a long-range potential for urbanization and industrial development in the agricultural region. A good share of Producers' land is located in this area, which is bisected by the mammoth San Luis Canal and a new freeway connecting San Francisco and Los Angeles. Additional studies are aimed at developing still other land as small "Rancheros", subdivisions, and real estate investment programs.

- 1970 Annual Report

Producers Cotton Oil Co.
in 1969 leased 4,448.85 acres
in Kern County from the
Southern Pacific Co.

South Lake Farms ASCS Subsidies	
1970	$1,875,454
1969	$1,788,052
1968	$1,177,320
1967	$1,304,093
1966	$1,468,696
	$7,613,615

Condensed balance sheets of Prodco Finance Co., wholly owned by Producers Cotton Oil Company (a subsidiary of Bangor Punta) are as follows:

Prodco Finance Co.—Condensed Balance Sheets

Assets	September 30 1970	September 30 1969
Cash	$ 25,000	$ 25,000
Notes and accounts receivable	7,363,318	8,058,505
Loans and advances to growers	15,615,987	27,507,041
Crop loans to parent company owned ranches	2,4[illegible]1,890	5,528,352
Deferred charges	1,224	1,768
	$25,487,419	$41,120,666
Liabilities and Capital		
Loans payable to banks	$10,450,879	$25,065,844
Accounts payable and accrued expenses	957,741	530,404
Short-term advances from parent company	6,2[illegible]702	7,684,503
	$17,692,322	$33,280,751
Parent company investment:		
Subordinated loans	4,0[illegible]0,000	4,000,000
Advances	3,723,523	3,787,768
Capital stock, 25,000 shares—$1 par value	25,000	25,000
Retained earnings—beginning of year	27,147	15,959
Add net income (revenues $2,515,534 less expenses of $2,496,107 in 1970)	19,427	11,188
Retained earnings—end of year	46,574	27,147
	7,795,097	7,839,915
	$25,487,419	$41,120,666

Producers Cotton Oil Company is obligated to loan Prodco Finance Company up to $4,000,000 subordinated to the bank loans, and has also guaranteed 20% of the maximum amount advanced by certain banks to Prodco during the year, and with respect to the principal bank has guaranteed the 20% or $4,000,000 whichever is greater.

Certain operating units and the investment in $1,500,000 principal amount A. M. Castle & Co. 6% convertible debentures are planned to be sold or liquidated. For the balance sheet, the aggregate net assets of these units and the debentures at September 30, 1970 have been shown as "Net Assets of Operations Being Discontinued" and the statement of consolidated income includes the result of operations of these units as "Income (Loss) of Operations Being Discontinued." Subsequent to September 30, 1970, three of such operating units (Bale Pin Company, Metcalf & Eddy, Inc. and Connell Associates, Inc.), whose net assets comprised approximately one-half of the carrying amount on the balance sheet, were sold for an aggregate consideration of approximately $17,000,000. Of the proceeds, $10,000,000 will be paid in permanent reduction of the long-term debt. The profit realized will be deferred pending determination of the results of sale or liquidation of the remaining units and the tax effects thereon.

- 1970 Annual Report

BANKAMERICA CORP. (Bank of America N.T. & S.A.)

P.O. Box 3415, Rincon Annex, San Francisco, California 94120

Financial Profile

Market Value:	(39)	$2,201,920,000
Revenues:	(94)	$1,489,255,000
Assets:	(2)	$29,739,902,000
Net Profits:	(25)	$163,878,000

Chief Executive:	A.W. Clausen
Total Remuneration:	$168,000
Value of Shares Owned/Controlled By:	$339,000

Physical Profile

No. of Employees: 36,000 977 branches in California

Own a 5% investment in Envirotech Corp.

Wholly-owned subsidiary - Western American Financial Inc. (purchases paper of real estate developers)

Claims a $125 million real estate trust

Operation Notes

Made over 100,000 agricultural loans in the years 1960-1970 totaling over $10.5 billion

1970 - made 8600 loans to agriculture totaling $1.5 billion

Claims the number of agricultural loans is decreasing but the size or amount of loans are increasing

In 1966 helped finance a $70 million fertilizer plant in India to be owned jointly by the bank, Armour & Co., U.S. Steel and India's privately-owned Birla Industries.

In 1968 the bank helped establish the Agribusiness Investment Corporation although bank officials denied any "official" connection with the Corporation. In 1968 the Agribusiness Investment Corp. received a $9,001 ASCS subsidy.

Interconnecting Directorates

Litton Industries; Pacific Mutual Life Insurance Co.; Producers Cotton Oil Co.; Bekins Co.; Di Giorgio Corp. (3); Broadway-Hale Stores Inc. (4); Pacific Telephone and Telegraph (2); Sears Roebuck & Co.; Dillingham Corp.; Times-Mirror Corp. (2); Getty Oil Co. (2); Levi Strauss & Co.; Pan American World Airways; Santa Fe Industries; Kaiser Industries (2); Southern California Edison Co.; McEnerney & Jacobs (law); Norton Simon Inc.; Time, Inc.; Consolidated Foods Corp.; Von's Grocery Co.; Stanford Research Institute, American Potato Co.; Prudential Insurance Co.; Standard Oil of California (2); Lucky Stores Inc.; Pacific Lighting Corp.(2); Hallmark Cards Inc.; Ford Motor Co.; Samuel H. Kress Foundation; Foremost McKesson Inc.; Newhall Land and Farming Co., among others.

THE BANK OF CALIFORNIA, N.A.

P.O. Box 3511, Rincon Annex, San Francisco, California 94120

Financial Profile

Market Value: $75,061,000
Revenues: $128,120,000
Assets: (126) $1,916,144,000
Net Profit: $6,922,000

Chief Executive: Charles de Bretteville
Total Remuneration: Not Available
Value of Shares Owned/Controlled By: Not Available

No. of Stockholders: 7,069

Physical Profile

No. of Employees: 3,856 70 offices in California

Subsidiary: San Francisco and Fresno Land Co.
In 1970 contributed $ .05 per share to consolidated net income
In 1969 contributed $ .045 per share to consolidated net income
Farmed 7500 acres in 1970 as opposed to 5000 acres in 1969 - "a further increase is expected in 1971"
A "Fresno Land Co." received a $16,111 ASCS subsidy in 1969.

Operation Notes

Manages Safeway Stores Inc. U.S. Employee Retirement Plan

Interconnecting Directorates

Caterpillar Tractor Co.; J.G. Boswell Co.; Safeway Stores Inc. (2); Fibreboard Corp.; Southern Pacific Co.; Merrill Lynch, Pierce, Fenner & Smith; Boeing Co.; Broadway-Hale Stores Inc.; Cahill Investment Co.; Di Giorgio Corp.; Potlatch Forests Inc.; FMC Corp.; Western Pacific Railroad Co. (4); Times Mirror Co.; Pacific Gas & Electric Co. (2); Shell Oil Co.; Ridder Publications; Stauffer Chemical Co.; Pacific Telephone & Telegraph Co.; Del Monte Corp. (4); John Geer Chevrolet Co.; Hyster Co.; Natomas Co.; American President Lines, Ltd.; Bogle, Gates, Dobrin, Wakefield & Long (law); Pacific Lumber Co.; Pillsbury, Madison & Sutro (law) (2); M & T Inc.; U.S. Leasing International Inc.; Amfac Inc. (2); Signal Insurance Co.; Ideal Basic Industries; Ketchikan Pulp Co.; California Liquid Gas Corp., among others.

CAMPBELL SOUP COMPANY

Camden, New Jersey 08101

Financial Profile

Market Value:	(92)	$1,083,494,000
Revenues:	(179)	$ 964,754,000
Assets:	(440)	$ 605,498,000
Net Profits:	(120)	$ 62,720,000

Chief Executive: W.B. Murphy
Total Remuneration: $242,000
Value of Shares Owned/Controlled By: $2,210,000

No. of Stockholders: 30,000 33,477,294 average shares outstanding

Physical Profile

Brands, Principal plants, and Subsidiaries - see following page

No. of Employees: 30,000
Company claims 25% minority employment

Operations Notes

Large part of its produce buying is through farm contracts

Interconnecting Directorates

J.P. Morgan & Co., Inc.(2); Penn Mutual Life Insurance; Armstrong Cork Co.; White & Case (law); Sullivan & Cromwell (law) (2); Bank of New York; Merck & Co. Inc. (3); Bethelhem Steel Co.; International Paper Co. (2); Bankers Trust New York Corp.; Prudential Life Insurance Co.; Rockefeller Foundation; B.F. Goodrich Co.; Canadian Imperial Bank of Commerce; Honeywell (2); American Telephone & Telegraph Co.; Drinker, Biddle & Reath (law); Ford Motor Co.; New Jersey Bell Telephone Co.; Pharmaceutical Manufacturers Association; U.S. Steel Corp.; Equitable Life Assurance Society of the U.S.; Interpace Corp.; Morgan Guaranty Trust Co. of New York (2); John Wanamaker; Cities Service Co.; General Electric Co.; INA Corp.; Scott Paper Co.; Smith Kline & French Laboratories; International Flavors & Fragrances Inc.; Kimberly Clark Corp.; Viacom International Inc.; Federal Reserve Bank of Cleveland; Ohio Bell Telephone Co.; Provident Mutual Life Insurance of Philadelphia, Continental Oil Co.; Allied Chemical Canada Ltd.; Brascan Ltd.; Canada Life Assurance Co.; Falconbridge Nickel Mines Ltd.; Ford Motor Co. of Canada; Magnum Fund Ltd.; TransCanada Pipelines Ltd.; American Re-Insurance Co.; Phillips Petroleum Co.; Girard Bank; I-T-E Imperial, among others.

Campbell's

- REGULAR CONSUMER SOUPS
- FROZEN SOUPS
- *FOOD SERVICE SOUPS
- BEAN PRODUCTS
- TOMATO JUICE
- *READY-TO-SERVE SAUCES
- *READY-TO-SERVE CANNED ENTREES

FRANCO-AMERICAN

- SPAGHETTI PRODUCTS
- SPAGHETTIOS PRODUCTS
- MACARONI PRODUCTS
- SAUCES
- GRAVIES

PEPPERIDGE FARM

- BREAD AND ROLLS
- STUFFING
- COOKIES
- "GOLDFISH" CRACKERS
- FROZEN PASTRIES
- LAYER CAKES

V-8 COCKTAIL VEGETABLE JUICE

Bounty

GODIVA

SWANSON

- FROZEN PREPARED FOODS
  - DINNERS
  - ENTREES
  - BREAKFAST
  - MEAT PIES
- CANNED POULTRY PRODUCTS

Kia-ora

GRANNYS

***EFFICIENC**

*Prepared especially for food service establishments

PRINCIPAL PLANTS

UNITED STATES

ARKANSAS—Fayetteville
CALIFORNIA—Modesto, Sacramento
CONNECTICUT—Norwalk
DELAWARE—Clayton
GEORGIA—Cairo
ILLINOIS—Chicago, Downers Grove
INDIANA—Saratoga
MARYLAND—Chestertown, Pocomoke City, Salisbury
MINNESOTA—Worthington
NEBRASKA—Fremont, Omaha, Tecumseh
NEW JERSEY—Camden, Parsippany
OHIO—Napoleon
PENNSYLVANIA—Bloomsburg, Downingtown
SOUTH CAROLINA—Sumter
TEXAS—Paris

CANADA

MANITOBA—Portage la Prairie
ONTARIO—Chatham, Listowel, St. Marys, Toronto

OTHER COUNTRIES

AUSTRALIA—Shepparton
BELGIUM—Vilvoorde
ENGLAND—King's Lynn
FRANCE—Nieppe
ITALY—Felegara
MEXICO—Villagran

PRINCIPAL SUBSIDIARIES

Campbell Sales Company
Champion Valley Farms, Inc.
Clark corporations
Godiva Chocolatier, Inc.
Herty's Corporation
Joseph Campbell Company
Pepperidge Farm, Incorporated
W. L. Wheatley, Inc.
Biscuits Delacre S. A. (Belgium)
Campbell Soup Company Ltd (Canada)
Campbell's de Mexico, S.A. de C.V. (Mexico)
Campbell's Soups (Aust.) Pty. Limited (Australia)
Campbell's Soups Limited (Great Britain)
Campbell's Soups S.p.A. (Italy)

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CARNATION COMPANY

5045 Wilshire Boulevard, Los Angeles, California 90036

Financial Profile

Market Value:	(123)	$ 867,814,000
Revenues:	(159)	$1,053,358,000
Assets:	(489)	$ 536,261,000
Net Profit:	(183)	$ 45,883,000

Chief Executive: H.E. Olson
Total Remuneration: $128,333
Value of Shares Owned/Controlled By: $738,000

Physical Profile

No. of Employees: 19,000

Major U.S. Facilities - see following page

Carnation's Principal U.S. Products

UNITED STATES

Evaporated Milk: CARNATION, MORNING, GOLD CROSS brands
TOPIC Filled Milk
PRAISE Non-Dairy Creamer (Institutional)
CARNATION Instant Nonfat Dry Milk
CARNATION Instant Breakfast
SLENDER Diet Food
COFFEE-MATE Non-Dairy Creamer
CARNATION Hot Cocoa Mix
CARNATION Malted Milk Products
TRIO Dehydrated Potatoes (Institutional)
RICHNING Non-Dairy Coffee Creamer (Institutional)
CHEF-MATE Foods (Institutional)
WHIP-MATE Topping Mix (Institutional)
TRIO Gravy Mixes (Institutional)
TOPIC Non-Dairy Coffee Creamer (Institutional)
Frozen Potato Products
THE SPREADABLES Sandwich Spreads
CARNATION and BRENTWOOD Fresh Milk, Ice Cream and Cottage Cheese
Frozen Novelties
CARNATION Yogurt and Dips
CONTADINA Tomato Products: Paste, Sauce, Puree, Stewed, Canned Whole Tomatoes, Sliced Baby Tomatoes, Pizza Sauce
CONTADINA COOKBOOK SAUCES
CONTADINA Canned Fruit (Institutional)
FRISKIES Canned Dog Foods
FRISKIES Canned Cat Foods
BUFFET Cat Food
FRISKIES Mix and Sauce Cubes for Dogs
LITTLE FRISKIES Dry Cat Food
FRISKIES Puppy Food
ALBERS Flapjack Pancake Mix
ALBERS Corn Meal
CARNATION Brewers Grits
ALBERS Poultry Feeds
ALBERS Dairy and Beef Feeds
ALBERS Calf Manna Calf Feed
ALBERS Horse Feeds
ALBERS Specialty Feeds and Feeding Equipment
ALBERS Grains and Concentrates
MAN O' WAR Horse Care Products
TEMPER Grain Conditioner
Eggs
Turkeys
Cans

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Interconnecting Directorships

United California Bank; Wilmington Trust Co.; FMC Corp.: Kidder, Peabody & Co., Inc.; Security Pacific National Bank; Pacific Mutual Life Insurance; Getty Oil Co.; Southern California Edison, among others.

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EVAPORATED MILK

Condenseries

California: Gustine
Colorado: Johnstown
Illinois: Oregon
Kentucky: Maysville
Michigan: Sheridan
Mississippi: Tupelo
Missouri: Mt. Vernon
New York: South Dayton
North Carolina: Statesville
Pennsylvania: Cambridge Springs
Tennessee: Murfreesboro
Texas: Sulphur Springs
Virginia: Galax
Washington: Mt. Vernon
West Virginia: Clarksburg

Receiving Stations

Arkansas: Harrison
California: Chico, Turlock
Kentucky: Mt. Sterling, Danville, Campbellsville, Glasgow, Somerset
Maryland: Oakland
Michigan: Barryton
Mississippi: Baldwyn
Missouri: Ava, El Dorado Springs, Seymour
North Carolina: Albemarle, Monroe, Shelby
Pennsylvania: Corry
Tennessee: Manchester, Sparta, Watertown
Virginia: Riner, Stuart
West Virginia: Cameron

CAN MANUFACTURING

California: Gustine, Riverbank
Canada: Aylmer (Ontario)
Idaho: Nampa
Kentucky: Maysville
Missouri: Mt. Vernon
Oregon: Hillsboro
Pennsylvania: Cambridge Springs
Texas: Mansfield
Washington: Mt. Vernon
Wisconsin: Oconomowoc, Waupun, Menomonee Falls

PROTEIN ISOLATE PLANT

Ohio: Coshocton

CONTADINA FOODS

California: Riverbank, San Jose, Woodland

McGRAW COLORGRAPH

California: Burbank

TRENTON FOODS

Missouri: Trenton

DAYTON RELIABLE TOOL & MFG. CO.

Ohio: Dayton

CARNATION PROCESSED POTATOES (PRONTO PACIFIC)

Washington: Moses Lake

FRESH MILK AND ICE CREAM

Milk and Ice Cream Plants

Arizona: Phoenix*
California: Bakersfield, Glendale, Los Angeles*, Oakland, San Diego*
Iowa: Waterloo
Oklahoma: Tulsa
Oregon: Portland
Texas: Houston, San Antonio, Wichita Falls*
Washington: Seattle, Spokane, Sunnyside

By-Products Plants

California: Fullerton, Stockton
Texas: Schulenburg

Distribution Branches

Arizona: Flagstaff, Tucson, Yuma
California: Fontana, Fresno*, Indio, Lancaster, Long Beach, Oceanside, Sacramento*, Santa Clara, Santa Maria, San Mateo, Stockton, Van Nuys, Ventura, Victorville
Idaho: Moscow
Iowa: Fort Dodge, Mason City, Oelwein, Waverly
Nevada: Reno
Oklahoma: Muskogee*, Oklahoma City
Oregon: Eugene, Pendleton, Salem, The Dalles
Texas: Austin, Beaumont*, Dallas, Fort Worth**, Freeport, Lubbock*, Texas City, Victoria
Washington: Bremerton, Richland, Tacoma, Walla Walla, Yakima

**Retail Ice Cream Stores in addition*
***Retail Stores only*

PET FOODS AND CEREALS

California: Oakland
Missouri: St. Joseph
Oregon: Hillsboro
Utah: Ogden
Wisconsin: Jefferson

By-Products Processing Plants

Arkansas: Springdale
Washington: Seattle

ALBERS MILLING

Mills

California: Beaumont, Fresno, Red Bluff, Santa Rosa, Stockton
Colorado: Ft. Lupton
Hawaii: Honolulu
Missouri: Kansas City
Oregon: McMinnville, Portland
Washington: Bellingham, Tacoma

Poultry Ranches and Egg Processing Plants

California: Santa Rosa, Windsor
Colorado: Brighton, Henderson

Hawaii: Honolulu, Waianae, Ewa
Oregon: Logan, Mt. Angel
Washington: Auburn, Tenino

INSTANT PRODUCTS

Illinois: Jacksonville
Iowa: Waverly (two plants)
Wisconsin: Chilton, Oconomowoc

CARNATION FARMS

Registered Holstein and Polled Hereford Farm, Albers Research Farm, Dog Kennels and Cattery

Washington: Carnation

Breeding Service

Washington: Carnation
Wisconsin: Watertown

RESEARCH LABORATORIES

California: Van Nuys

DISTRIBUTION CENTERS

California: Stockton
Illinois: Rochelle
Indiana: Fort Wayne
Kansas: Elwood
Pennsylvania: Mechanicsburg

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CASTLE AND COOKE, INC.

Drawer 2990, Honolulu, Hawaii 96802

Financial Profile

Market Value:	(467)	$248,132,000
Revenues:	(333)	$496,950,000
Assets:		$447,362,000
Net Profit:	(431)	$ 17,625,000

Chief Executive: M. MacNaughton
Total Remuneration: $178,000
Value of Shares Owned/Controlled By: $2,336,000

Physical Profile

No. of Employees: 34,000

Subsidiaries and Divisions:
Dole Co., Bumble Bee Seafoods, California and Hawaiian Sugar Co., Royal Hawaiian Macadamia Nut Co., Oceanic Properties (California's Sea Ranch), Barclay Hollander Curci, Ames Mercantile, Arneson Products, Hawaiian Equipment, Republic Glass, Thai-American Steel, Castle & Cooke Terminals, Computer Services, PLAN (international agribusiness management and consulting service), Castle & Cooke East Asia, Standard Fruit and Steamship Co. (which controls 37% of the North American banana market).

Operation Notes

ASCS Subsidies

1966	Waialua Agricultural Co. Ltd..........	$516,520
	Ewa Plantation Co......................	$458,220
	Kohala Sugar Co........................	$420,019
1967	Waialua Agricultural Co. Ltd..........	$600,477
	Ewa Plantation Co......................	$486,233
	Kohala Sugar Co........................	$800,718
1970	Waialua Sugar Company..................	$1,111,060
	Kohala Sugar Co........................	$383,958
		$4,777,205

Interconnecting Directorates

Wells Fargo Bank, N.A. (3); Safeway Stores Inc.; Hewlett Packard Co.; Utah Construction & Mining Co.; Owens-Illinois Inc.; Stanford Research Institute, Honolulu Star Bulletin, Newhall Land and Farming Co.; Bank of Hawaii; Hawaiian Airlines Inc. (3); Hawaiian Trust Co., Ltd.(4); Andrade & Co., Ltd.; First Insurance Company of Hawaii (3); Hawaiian Telephone Co. (2); Pacific Resources Inc.; Gasco Co.; Latin American Agribusiness Development Corp.; Valencia Water Co.; Pillmon-Piru Citrus Association; Ventura County Citrus Exchange; Sunkist Growers, Inc.; Las Pasas Orchard; Hawaiian Secutiries & Realty Ltd; Magoon Bros.; Cox Broadcasting Corp.; Magoon Development Corp.; Pacific Lumber Co.; Pope & Talbot, Watkins-Johnson Co.; General Electric; Hawaiian Electric Co.; Molokai Ranch Ltd; Kaiuaki Corp.; First National Bank of Oregon; Pacific Power & Light Co.; Sacramento Sky Ranch & [illegible]

CONSOLIDATED FOODS CORPORATION

135 South LaSalle Street, Chicago, Illinois 60603

Financial Profile

Market Value:	(107)	$992,503,000
Revenues:	(89)	$1,570,170,000
Assets:	(374)	$726,099,000
Net Profit:	(147)	$ 54,674,000

Chief Executive: W.A. Buzick Jr.
Total Remuneration: $162,000
Value of Shares Owned/Controlled By: Not Available

Physical Profile

No. of employees: 60,000

Subsidiaries and Divisions

Azar Nut Company
Azar shelled and processed pecans and nuts.

Delson Candy Company
Merri-Mints, Thin Mints, Fruit Creams and Hacks cough drops.

Hollywood Brands
Payday, Butternut, Milk Shake, Zero, Hollywood and 747 candy bars.

Popsicle Industries
John Lewis, Inc.
Popsicle, Fudgsicle, Creamsicle, Dreamsicle, Cherio and Swinger frozen confections; packaging for frozen confections.

Shasta Beverages
Shasta carbonated soft drinks.

Booth Fisheries
Booth *frozen and processed fish and seafood.*

Idaho Frozen Foods,
Rus-Ettes *frozen potato products.*

Kitchens of Sara Lee
Sara Lee *frozen baked goods and convenience foods*

Ocoma Foods Company
Ocoma frozen and processed poultry products; prepared convenience dinners.

Monarch Institutional Foods

Pearce-Young-Angel Company
Foods and related items for volume feeding operations.

(Continued on following page)

Operation Notes

Union Sugar Company owns 11,000 acres of land in California and 745,000 shares of Consolidated Foods Corp.
Amerine Turkey Breeding Farms, Inc. (Oakdale, Calif.) owns 3000 acres of land at six locations in the San Joaquin Valley

Interconnecting Directorates

Bankamerica Corp.: Bank of America N.T. & S.A.: Time Inc., Conill Corp.: Broadway Hale Stores Inc.: Di Giorgio Corp.: Kaiser Industries Inc.: Standard Oil of California: Wells Fargo Bank: Heller, Ehrman, White & McAuliffe (law): Rothschild Enterprises Inc. (investments), among others.

BEST COPY AVAILABLE

.., Gloves

Aris ladies gloves for dress and sports; Isotoner Body Suit; Hands Beautiful cosmetic gloves.

Canadian Lady-Canadelle

Wonder Bra ladies foundation garments, lounge and swimwear.

Country Set

Country Set women's sports and casual wear; Point Set tennis garments.

Gant Shirtmakers

Gant shirts for men.

Kates Limited
Pert Knitting Limited

Kates, Pert knitwear for women and children.

Pulitzer Tiemakers

Pulitzer ties and shirts.

Russel Taylor

Russel Taylor coats of simulated fur for men and women.

Sirena

Sirena ladies swimsuits, beach dresses and coverups.

Bloch and Guggenheimer

B & G pickles, relishes and sauerkraut.

C[illegible] Foods Company

Phillips, Gibbs canned pork and beans, franks and beans; canned and condensed soups.

Michigan Fruit Canners, Inc.

Thank You puddings, pie fillings, fruit crisps, spiced fruit, juices and vegetables.

Union Sugar Division

Union refined sugar.

Van Wagenberg-Festen's (Holland)

Jonker Fris fruits, vegetables and jellies.

Plasti-Kote

Plasti-Kote, Easy Way, Mr. Spray and E-Z Kote spray pai aerosol products including cleaners and lubricants; paint brushes.

Spectrum Fabrics

Spectrum fabrics for home decorating and furnishing.

Ty[illegible] Industries

Tyco electric trains and roadracing sets.

Bryan Packing Company

Bryan Brothers fresh, smoked, processed and canned meat products.

..e E. Kahn's Sons Company

Kahn's and Hickory Grove fresh, smoked and processed meat products.

Lawson Milk Company

Convenience stores in Ohio, Pennsylvania and Michigan. Production of Lawson brand food products sold in these stores.

Lawson Restaurants and Motels

L & K Restaurants and Motels

Lyons Restaurants

Manners Restaurants

Family styled restaurants and motels.

Abbey Rents

Rental and sale of party supplies and convalescent equipment; rental of furniture.

Cosco Industries

Marking devices, pricing equipment, labels, printing services, packaging, office supplies, badges and uniforms and advertising specialties.

Olympic Manufacturing Company

Equipment and supplies used to chemically clean and sanitize trucks, rail cars, airplanes and other types of commercial vehicles.

Oxford Building Services

Maintenance and security for commercial and industrial facilities; Cut N' Care services for grounds.

Oxford Chemicals

Chemicals used in cleaning, sanitizing and bacteriologica control in commercial and industrial facilities.

Authentic Furniture Products
B. P. John Furniture
Gem Furniture
Good Tables

Authentic, B. P. John, Gem and Good Tables chairs and dinettes, upholstered furniture, occasional tables, desks and bedroom furniture.

Conso Products Company

Conso trimmings and accessories for home decorating and sewing.

Como Publishing Company

"1001 Decorating Ideas"; "1001 Fashion and Needlecraft Ideas".

Electrolux

Electrolux vacuum cleaners, floor polishing and carpet shampooing equipment and supplies.

The Fuller Brush Company

Fuller brushes, brooms and other cleaning accessories; cosmetic aids for the entire family.

The Graber Company

Graber drapery hardware and window decorations.

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CROCKER NATIONAL CORPORATION (Crocker Citizens National Bank)

One Montgomery Street, San Francisco, California 94120

Financial Profile

Market Value:	(363)	$ 362,212,000
Revenues:	(399)	$ 400,836,000
Assets:	(32)	$6,032,451,000
Net Profit:	(250)	$ 34,176,000

Chief Executive: E.G. Solomon
Total Remuneration: $161,000
Value of Shares Owned/Controlled By: $136,000

Shareholders: 17,662 10,452,277 average number of shares outstandin

Physical Profile

No. of employees: 9,000

Subsidiary - Crocker McAlister Equipment Leasing Inc.

Operation Notes

"Bank Trust Department administers large Southern California ranch"
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Interconnecting Directorates

Bechtel Corp.; General Motors; Southern Pacific Co.; Bekins Company, Berry Oil Company; Caterpillar Tractor Co.; Del Monte Corp. (4); Yosemite Park and Curry Co.; Max Factor & Co.; Precision Instrument Co.; Broadway-Hale Stores Inc.; Levi Strauss & Co.; Fibreboard Corp.; Pacific Telephone and Telegraph Co. (3); New York Life Insurance Co.; Johnson, Bannon, Wohlwend and Johnston (law); Sears Roebuck & Co.; Standard Oil of California; Moore Dry Dock Co.; FMC Corp.; Marcona Corp.; Pacific National Life Assurance Co.; Norton Simon; Gibson, Dunn & Crutcher (law); Pacific Mutual Life Insurance Co.; Pacific Gas and Electric Co.; Di Giorgio Corp.; Pacific Lighting Corp.; Alaskan Packers Association Inc.; Canadian Canners Ltd.; Stanford Research Institute, among others.

DEL MONTE CORPORATION

215 Fremont Street, San Francisco, California 94119

Financial Profile

Market Value:	(401)	$303,515,000
Revenues:	(254)	$681,492,000
Assets:	(479)	$545,784,000
Net Profit:		$ 14,361,000

Chief Executive: A.W. Eames Jr.
Total Remuneration: $110,000
Value of Shares Owned/Controlled By: $571,000

Stockholders: 22,936 11,787,000 average number of shares outstanding

Physical Profile

No. of employees: 22,000

Del Monte Corp. and subsidiaries, operating facilities and services, and Del Monte Products - see following page.

Operation Notes

Own 32,000 acres and lease another 77,600 acres
Canned fruits and vegetables account for 60-65% of their sales
1100 salesmen in 56 sales offices throughout the United States
70 brokers distribute Del Monte products to institutions
In 1968 Del Monte spent $10 million in advertising, 70% of the amount going for television commercials.
Del Monte contracts with approximately 10,000 independent growers each year

UPWARD INTEGRATION - "Earlier I described how Del Monte integrated its operations downward, from the cannery to the field. But this, too, is a form of vertical integration --- the integration of the food processor upward to the service of the consumer. And the closer we come to this "perfect" integration --- to understanding and serving the individual consumer's needs --- the more interesting and challenging our business becomes."
- A.W. Eames Jr., May 27, 1971

Interconnecting Directorates

Bank of California, N.A. (4); Crocker National Corp. (4); Caterpillar Tractor Co. (2); Broadway-Hale Stores Inc. (2); Wells Fargo & Co. (2); Pillsbury, Madison and Sutro (law), Pacific Gas and Electric Co. (2); Yosemite Park and Curry Co.; Pacific Mutual Life Insurance Co.; American Telephone & Telegraph Co.; Western Bancorporation; Illinois Central Industries; Utah Construction and Mining Co.; Fireman's Fund American Insurance Co.; Wynterwade & Partners (foreign investments); FMC Corp.; Pacific Lighting Corp.; Southern California Edison Co., Transamerica Corp.; Alaskan Packers Association Inc.; University of San Francisco; General Electric; Pima Mining Co.; Hewlett Packard Co.; First Security Corp.; Chyrsler Corp.; Amfac, Inc.; American Express; Middle South Utilities, Itel Corp., among others.

Del Monte Corp. and subsidiaries

Domestic Operations

CANNED FOOD DIVISION
- California
- New Jersey
- Florida
- Hawaiian
- Midwest
- Mountain States
- Northwest
- Southwest

DRIED FRUIT DIVISION

SPECIALTY FOOD DIVISIONS

SUBSIDIARY COMPANIES
- Alaska Packers Assoc., Inc.
- Calpak Properties, Inc.
- West Sacramento Port Cntr., Inc.
- Distribution Systems, Inc.
- Granny Goose Foods, Inc.
- O'Brien, Spotorno, Mitchell
- Service Systems Corp.
- West Indies Fruit Co.

International Operations
- Belgium
- Brazil
- Canada
- Costa Rica
- Ecuador
- France
- Guatemala
- Italy
- Japan
- Kenya
- Mexico
- Panama
- Puerto Rico
- Philippines
- South Africa
- United Kingdom
- Venezula

Operating Facilities & Services

FOOD PROCESSING PLANTS	D	I	Total
Canned Foods	38	21	59
Dried Fruits	3	-	3
Snack Foods	4	4	8
Specialities and Frozen Foods	6	1	7
RELATED FACILITIES			
Alcohol & Vinegar	2	2	4
Apricot Pit & Kernal	1	-	1
Banana Freighters	-	6	6
Banana Terminals	3	1	4
Can Manufacturing	11	3	14
Canning Machinery	-	1	1
Cattle Feeding	5	1	6
Distribution Centers	9	1	10
Farms, Ranches, etc.	28	12	40
Label Printing	1	-	1
Research Labs	4	1	5
Seed Farming & Process	6	1	7
Tuna Freezing & Storage	-	1	1
Tuna Transport Vessels	-	6	6

Operating Facilities & Services

PUBLIC TRANSPORATION FACILITIES	D	I	T
Air Freight Forwarding	14	-	14
Ocean Terminal	1	-	1
Trucking Operations	4	1	5
Warehousing	4	-	4
OTHER SERVICES & ACTIVITIES			
Building Maintenance	238	6	244
Food Service Accounts	617	-	617
Food Vending Accounts	218	-	218
Land Sites (Development)	2	-	2
Public Restaurants	24	-	24

Del Monte Products

- Canned Fruits
- Canned Vegetables
- Canned and Packaged Specialities
- Canned Juices, Juice Drinks, Fruit Drinks, Nectars
- Canned Seafood
- Pickles and Pickle Products
- Dried Fruits
- Fresh Produce
- Frozen Food Specialties
- Prepared Potato Products
- Snack Foods

D = Domestic
I = International

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THE DI GIORGIO CORPORATION

One Maritime Plaza, San Francisco, California 94111

Financial Profile

Market Value:		$ 54,379,000
Revenues:	(434)	$365,606,000
Assets:		$168,506,000
Net Profit:		$ 3,195,000

Chief Executive: Robert Di Giorgio
Total Remuneration: $120,000
Value of Shares Owned/Controlled By: $295,000

Physical Profile

No. of employees: 4,000

Divisions - see following page

Brands: White Rose, Redi-Tea, Met, Treasure Valley, Ladco, Filper Pitter, Fil-Per-Pak, TreeSweet, Caveman, Roadrunner, Californian, Bell, Siesta

In 1970 DiGiorgio's operating profits were derived from these sources:

Consumer Products:	
Distribution	35%
Food Packaging and Equipment Manufacturing	16%
Specialty Foods and Products	30%
Leisure Products	- 6%
Land Resources and Shelter:	
Forest Products and Housing Components	21%
Agriculture and Land Use	4%

Operation Notes

ASCS Subsidy Payments:

1968	$63,561
1967	$82,194
1966	$56,100
	$201,855

Interconnecting Directorates

Pacific Telephone and Telegraph Co. (2); Bankamerica Corp. (2); Bank of America N.T. & S.A. (3); Broadway-Hale Stores Inc. (2); Standard Oil of California; Bank of California, N.A.; Cahill Investment Co.; Pacific National Life Assurance Co.; Union Oil Co. of California; Unionamerica Inc.; Union Oil Co. of Canada Ltd.; New York Life Insurance Co.; Crocker National Corp.; C.L. Peck Co.; Time Inc.; Kaiser Industries; Consolidated Foods Corp.; Newhall Land and Farming Co., among others.

DISTRIBUTION OF FOODS, DRUGS AND SUNDRIES

Metropolitan New York:	Groceries, Frozen Foods, Produce, Fresh Fruits
Philadelphia:	Produce, Fresh Fruits
Mountain States:	Groceries, Frozen Foods, Produce, Drugs and Sundries
San Francisco Bay Area:	Shippers and Commission Sales Agents for Fresh Fruits and Produce
Los Angeles, Northern & Southern Calif.:	Ethical and Proprietary Drugs, Toiletries and Sundries, Candy
Data Processing Services:	New York, Los Angeles, San Francisco, Boise, Idaho

FOOD PACKAGING AND EQUIPMENT MANUFACTURING

Portion-Packaged Foods: *Market Area: U.S.*	Plants in California and Ohio
Food Packaging and Processing Equipment: *Market Area: U.S., Europe, Australia, South Africa*	Plants in California, New York, Australia, South Africa

FOREST PRODUCTS AND HOUSING COMPONENTS

Lumber & Sawmill Operations:	Six Mills - Oregon & Northern California
Millwork & Remanufacturing:	Seven Mills - Northern California
Pre-cut & Sub-assembled Houseframe Components:	One Mill - Northern California
Soil Amendment Products:	Six Plants - California & Arizona; Oregon and California sawmills
Aluminum Construction Components --Doors, Windows, Frames	Two Plants - Southern California

LEISURE PRODUCTS

Recreational Vehicles & Accessories: *Market Area: Western U. S.*	Plants in California (3), Oregon, Montana, Utah
Casual Furniture: *Market Area: U.S., Canada, Europe*	Plants in New York, California, Philippines, Hong Kong

AGRICULTURE AND LAND USE

Citrus Production:	Indian River, Floride - 5,200 acres of premium-grade Oranges, Grapefruit, Tangerines
Pear and Plum Production:	Marysville, California - 2,500 acres
Borrego Springs, California:	7,000 acres - Condominium Apartments, Mobile Home Park, Shopping Mall, Golf Course
Danville, California:	233 acres - Sycamore Residential Community - Detached & Townhouse Residences, Recreation Facilities
Tahoe City, California:	17 acres - Star Harbor - Resort Condominiums

SPECIALTY FOODS AND PRODUCTS

Citrus and Other Juice Products: *Market Area: U.S., Canada, Europe*	Plants in California (2), Floride and Holland
Specialty Meats and Snack Foods: *Market Area: Atlantic States, Selected metro markets*	Plant in Massachusetts
Plastic Cutlery: *Market Area: U.S.*	Plants in California and Texas
Candy: *Market Area: European Common Market, U. S.*	Plant in Belgium

SUMMARY

Diversifying from the base of agricultural operations which in 1957 provided 100% of its operating earnings, Di Giorgio has effectively realigned its activities into two fast-growing, more dynamic lines of business: consumer products (currently 75% of operating profit); land resources and shelter (25%).

- 1970 DiGiorgio Corp. Digest

DOW CHEMICAL COMPANY

Midland, Michigan 48640

Financial Profile

Market Value:	(38)	$2,223,770,000
Revenues:	(62)	$1,911,105,000
Assets:	(76)	$2,779,802,000
Net Profit:	(57)	$ 103,387,000

Chief Executive: C.B. Branch
Total Remuneration: $103,012
No. of Shares Owned/Controlled By: 10,235

Physical Profile

No. of employees: 47,000

Divisions - see following page

Brands: Tordon, Dowpon, Premerge, Tavron, Ruff-Tabs, Trycite (polystyrene film), Kedlor, Coyden, Zoamix, Dursban, Zectran, Saran Wrap, Handi-Wrap, Dow Oven Cleaner, Dow Bathroom Cleaner, Phenoxy herbicides (2,4-D and 2,4,5-T)

Dow and Swift & Co. are the principal stockholders in Consolidated Fertilizers, Ltd. (Australia)

Operation Notes

In 1969 (July) Dow bought 17,000 acres in Arizona and California from the Bud Antle Inc. for $5 million plus (largely in Pinal and Pima counties) - see "Corporation Farming" on following page

- -Leased 3000 acres back to Antle in 1970
- -C.F. Weaver, president and board member of Dow Chemical Finance Corp. (maker of commercial loans and a subsidiary of Dow Chemical Co.) is a board member of Bud Antle Inc.
- -Dow began making lettuce wrappers for Antle in 1961
- -Sells Antle pesticides
- -Partners with Antle in a styrofoam container company in California.

Interconnecting Directorates

University of California (chemistry); National Bank of Detroit; Dundee Cement Co.; Dow Corning Corp. (4); National City Bank of Cleveland; Chemical Bank and Trust Co. (Midland, Mich.) (4); Chase Manhattan, American Research and Development; First National Bank and Trust Co. (Midland, Mich.) (2); Citizens Bank and Trust Co. (Claire, Mich.); Second National Bank of Saginaw; Peoples National Bank and Trust (Bay City, Mich.); Michigan Bell Telephone Co., among others.

The Dow Chemical Company

CORPORATE HEADQUARTERS: MIDLAND, MICHIGAN

UNITED STATES AREA/ **Earle B. Barnes, General Manager**
Headquarters: Midland, Michigan

S[illegible] OFFICES IN 24 CITIES • 29 MANUFACTURING LOCATIONS IN 18 STATES: *Arizona* Tucson • *Arkansas* [illegible]ussellville • *California* Fresno, Pittsburg, Torrance • *Colorado* Denver, Golden • *Connecticut* Gales Ferry • *Georgia* Dalton • *Hawaii* Honolulu • *Louisiana* Plaquemine • *Michigan* Bay City, Ludington, Midland • *Minnesota* Biwabik • *Missouri* Cape Girardeau, Pevely • *New Jersey* Carteret • *Ohio* Cleveland, Findlay, Ironton, Newark • *Oklahoma* Tulsa • *Pennsylvania* Royersford • *Texas* Freeport, Oyster Creek • *Utah* Ogden (under construction) • *Washington* Dallesport (under construction) • PRINCIPAL PARTLY OWNED COMPANIES*: Dolco Packaging Corp., Los Angeles, California • Dow Badische Company, Williamsburg, Virginia • Dow Corning Corporation, Midland, Michigan • The Kartridg Pak Co., Davenport, Iowa

DOW CHEMICAL EUROPE S.A./ **Zoltan Merszei, President**
Headquarters: Zurich, Switzerland

OFFICES IN 18 CITIES • 14 MANUFACTURING LOCATIONS IN 8 COUNTRIES: *France* Drusenheim • *Germany* Greffern, Stade (under construction) • *Greece* Lavrion • *Italy* Livorno • *The Netherlands* Rotterdam, Terneuzen • *Spain* Barcelona, Bilbao, Santander, Tarragona • *Sweden* Norrkoping (under construction) • *United Kingdom* King's Lynn, England, Barry, Wales • PRINCIPAL PARTLY OWNED COMPANIES*: Compagnie des Services Dowell Schlumberger, Paris, France • Dowell Schlumberger Corporation, London England • Lurex N.V., Amsterdam, The Netherlands • Phrix-Werke A.G., Hamburg, Germany

DOW CHEMICAL OF CANADA, LIMITED/ **LeRoy D. Smithers, President**
Headquarters: Sarnia, Ontario

S[illegible] OFFICES IN 6 CITIES • 10 MANUFACTURING LOCATIONS IN 4 PROVINCES: *Alberta* Edmonton, Fort Saskatchewan • *British Columbia* Ladner • *Ontario* Don Mills, Thunder Bay, Sarnia, Toronto, Weston • *Quebec* Montreal, Varennes

DOW CHEMICAL LATIN AMERICA S.A./ **D[illegible]a W. Schornstein, President**
Headquarters: Coral Gables, Florida

OFFICES IN 11 CITIES • 10 MANUFACTURING LOCATIONS IN 5 COUNTRIES: *Argentina* Buenos Aires, San Lorenzo • *Brazil* Santos (under construction), São Paulo (two locations) • *Chile* Concepción, Santiago • *Colombia* Bogotá, Cartagena • *Mexico* Mexico City • PRINCIPAL PARTLY OWNED COMPANIES*: Atanor S.A.M., Buenos Aires, Argentina • Poliolefinas Colombianas S.A., Bogotá, Colombia

DOW CHEMICAL PACIFIC LIMITED/ **Robert W. Lundeen, Managing Director**
Headquarters: Hong Kong

OFFICES IN 14 CITIES • MANUFACTURING OPERATIONS IN *Australia* Altona, Rhodes, Smithfield • PRINCIPAL PARTLY OWNED COMPANIES*: Asahi-Dow Limited, Tokyo, Japan • Austral-Pacific Fertilizers, Brisbane, Australia • Ivon Watkins-Dow Limited, New Plymouth, New Zealand • Korea Pacific Chemical Corporation, Ulsan, Korea • Pacific Chemicals Berhad, Kuala Lumpur, Malaysia • Polychem Limited, Bombay, India

LI[illegible]SCIENCES DEPARTMENT/ **William R. Dixon, General Manager**
Headquarters: Midland, Michigan

INDIANAPOLIS DIVISION (*Rx Pharmaceuticals, Generic Pharmaceuticals, Diagnostics, Environmental Bio Engineering*), Indianapolis, Indiana • Gruppo Lepetit, S.p.A., Milan, Italy • Bio-Science Laboratories, Van Nuys, California • Laboratorios Industriales Farmaceuticos Ecuatorianos, S.A., Quito, Ecuador • Photovolt Corporation, New York, New York • PRINCIPAL PARTLY OWNED COMPANIES*: Bioscientia Klinisch-Diagnostisches Institut GmbH, Ingelheim am Rhein, Germany • Cordis Dow Corp., Miami, Florida • Medical Laboratory Automation, Inc., Mt. Vernon, New York • Nova Quest, Los Altos, California

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* [illegible]

Corporation Farming

Changes taking place in Arizona were recently pinpointed by the Arizona Farmer-Ranchman in its issue of October 18, 1969. I want to commend this perceptive article to the Members of the House:

CORPORATION FARMING—WHY?

Something is happening to American agriculture that is bound to have profound effects on the future of our country, and probably not for the better.

That is corporation farming, widely diversified as to both products and localities.

The USDA has issued reassuring reports to point out that the farmland acquired by powerful corporations, previously in different and unrelated fields, is only a small fraction of the total. That is true, but still a trend is definitely indicated and the evidence may be stronger in Arizona than elsewhere.

The latest example of this trend is the take-over of Bud Antle, Inc., by the Dow Chemical Co. It involves 14,000 acres, largely in Pinal and Pima Counties but with other blocks extending into California as far as Salinas.

It is easy to say that Antle became overextended on money borrowed from Dow, and that Dow had to assume control or take chances in an involved bankruptcy proceeding. That theory does not look so reasonable when closely examined. Certainly Antle did expand to an extent that would have been overexpansion for him, but it is unlikely that Dow would have bankrolled him in that program. More likely it was all planned in advance, with the take-over to follow when enough acreage had been acquired. Dow had decided to get into agriculture, and did so through Antle.

[illegible], until a year or so ago a manu-
[illegible]ively of bleaches and other
[illegible] bought two of the
[illegible]shippers of
[illegible]

– 1970 Annual [illegible]

F M C CORPORATION

P.O. Box 760, San Jose, California 95106

Financial Profile

Market Value:	(158)	$ 741,390,000
Revenues:	(113)	$1,330,494,000
Assets:	(272)	$1,031,760,000
Net Profit:	(133)	$ 58,803,000

Chief Executive: Jack M. Pope
Total Remuneration: $174,000
Value of Shares Owned/Controlled By: $523,000

Stockholders: 43,000 31,053,000 average number of shares outstanding

Source of Sales:

Ordinance	12.9%	Fiber and Film	23.6%
Chemical	21.7%	Machinery	41.8%

Physical Profile

No. of employees: 47,000

FMC Operations and Products - see following page

Operation Notes

Leading supplier of fresh fruit and vegetable preparation equipment.

Subsidiary Niagara Chemical Co. conducted a series of controversial pesticide tolerance tests on farm workers in the San Joaquin Valley in the late summer of 1970. For complete details contact Agribusiness Accountability Project, 1000 Wisconsin Avenue NW, Washington,D.C. 20007. The Project has a detailed study and evaluation of these tests.

In Fall, 1971 the Lindsay manufacturing plant of the FMC Corp. Riverside Division completely refitted a new citrus packing and shipping plant in Terra Bella, California belonging to W.D. Fowler and Sons (a subsidiary of Pacific Lighting Corp. - see page 46). Complete details in The Packer, December 18, 1971.

Interconnecting Directorates

Kidder, Peabody & Co., Inc.; Carnation Co.; Bank of California, N.A.; Western Pacific Railroad Co. (2); Crocker National Corp.; Lehman Bros. Inc. (investment bankers); IBM Corp., Pillsbury, Madison and Sutro (law); Giffen, Inc.: Pacific Gas & Electric Co. (2): Wells Fargo & Co.; Georgia Pacific Corp.; Hewlett-Packard Co.; Del Monte Corp.; Southern Pacific Co.; Caterpillar Tractor Co.; Chase Manhattan Corp.; Ketchikan Pulp Co., among others.

FMC Operations & Products

MACHINERY GROUP

BOLENS DIVISION: Port Washington, Wisconsin
Compact tractors; rotary tillers; lawn mowers; snow casters; snow vehicles
CANNING MACHINERY DIVISION: San Jose, California
Food preparation & processing equipment; mechanical harvesters; frozen confection equipment
CENTRAL ENGINEERING LABORATORIES: Santa Clara, California
R&D in mechanical & electronic product areas
ENGINEERED SYSTEMS DIVISION: Santa Clara, California
Systems planning, machinery development & special manufacturing; freeze-dry, grocery warehousing, and forest products systems
ENVIRONMENTAL EQUIPMENT DIVISION: Chicago, Illinois
Chicago Pump and Link-Belt: Water and wastewater treatment equipment; building service pumps
Environmental Engineering Laboratories: Santa Clara, California
R&D in environmental equipment
FLORIDA DIVISION: Lakeland, Florida
Fruit & vegetable packing house equipment; citrus processing machinery; prestressed concrete casting forms; frost protection machines
GUNDERSON INC ②: Portland, Oregon
Railroad freight cars; barges; marine vessels
JOHN BEAN DIVISION: Lansing, Michigan
Agricultural sprayers, dusters, harvesters; irrigation systems; automotive & airline service equipment; fire fighting equipment; high-pressure industrial pumps
Side-Winder: Tillers & rotary cutters
[illegible]: Automotive service accessories
LINK-BELT BEARING DIVISION: Indianapolis, Indiana
Self-aligning ball and spherical roller bearings, sleeve bearing units
LINK-BELT CHAIN DIVISION: Indianapolis, Indiana
Drive and conveyor chains, automotive timing chain
LINK-BELT ENCLOSED DRIVE DIVISION: Philadelphia, Pennsylvania
Speed reducers, variable speed drives, valve actuators
LINK-BELT MATERIAL HANDLING EQUIPMENT DIVISION: Chicago, Illinois
Conveyors, elevators, vibrating screens, water screens, haulage machines
LINK-BELT MATERIAL HANDLING SYSTEMS DIVISION: Colmar, Pennsylvania
Engineered bulk material handling and processing systems, unit handling systems; dryers and coolers; car dumpers
LINK-BELT SPEEDER DIVISION: Cedar Rapids, Iowa
Power cranes, draglines, clamshells, hoes and shovels; hydraulic cranes and excavators; diesel pile hammers
PACKAGING MACHINERY DIVISION: Horsham, Pennsylvania
Packaging & paper box making machinery
Hudson-Sharp: Paper & film converting equipment; packaging machinery; flexographic printing presses
PEERLESS PUMP DIVISION: Los Angeles, California
Agricultural and industrial pumps; water systems
Coffin: Marine and industrial turbo pumps
[illegible] and Smith: Industrial castings
PETROLEUM EQUIPMENT DIVISIONS: Houston, Texas
Chiksan: Swivel & ball joints; liquid loading systems
Oil Center Tool: Wellheads; valves; underwater completion units
[illegible]: High-volume, submersible drive, vertical, centrifugal pumps
Weco: Unions; valves; swivel joints
RIVERSIDE DIVISION: Riverside, California
Fruit & vegetable packing house equipment; egg handling systems; materials handling & transport equipment; nailing machines
STEARNS ELECTRIC CORPORATION ②: Milwaukee, Wisconsin
Magnetic clutches and brakes, solenoid controls
SYNTRON DIVISION: Homer City, Pennsylvania
Vibratory materials handling equipment; parts handling and power screw driver equipment; shaft seals; power conversion equipment & components
INTERNATIONAL OPERATIONS:
FMC Machinery International Division: San Jose, California
British Cardboard Box Machine Company Ltd ②: St. Albans, England
Packaging & paper box making machinery
FMC Argentina, S.A. ②: Cordoba, Argentina
Food processing, agricultural & petroleum equipment
FMC (Australia) Ltd ②: Clayton, Australia
Food processing, agricultural, packaging, petroleum, waste treatment equipment
FMC Industria e Comercio Limitada ②: Sao Paulo, Brazil
Citrus processing, agricultural, and automotive service equipment
FMC/Link-Belt Africa, Ltd ②: Springs, Transvaal, Republic of South Africa
Food, agricultural, packaging equipment; cranes; vibratory equipment; materials handling, processing equipment
Food Machinery Espanola, S.A. ②: Valencia, Spain
Fruit & vegetable packing house equipment
FMC Maquinaria, S.A. ②: Mexico, D.F.
Food canning, processing and packaging machinery
FMC Packaging Machinery, N.V. ②: Aalst, Belgium
Packaging and set-up box making machinery, printing presses
International Machinery Corporation, S.A. ②: [illegible] Waas, Belgium
Food processing, packaging & agricultural equipment
Link-Belt Limited ②: [illegible], Ontario, Canada
Materials handling and power transmission machinery; water treatment equipment
Link-Belt Mexicana, S.A. de C.V. ②: [illegible], Mexico
Materials handling & power transmission products

MACHINERY GROUP (continued)

Link-Belt-Piratininga Transportadores Industriais Ltda. ②: Sao Paulo, Brazil
Materials handling & processing machinery
Link-Belt S.p.A. ②: Milan, Italy
Power shovels, cranes, hoes; hydraulic excavators; diesel pile hammers
Link-Belt Speeder (Canada) Ltd. ②: Woodstock, Ontario, Canada
Power shovels, cranes, hoes, hydraulic excavators; diesel pile hammers
Link-Belt Speeder Mexicana, S.A. de C.V. ②: Mexico, D.F.
Power shovels, cranes, hoes; hydraulic excavators; diesel pile hammers
[illegible], S.A. ③: Sens (Yonne), France
[illegible] equipment
[illegible] Industries Limited ③: Marrickville, Australia
Materials handling, processing and power transmission equipment
[illegible], S.A. ③: Maracaibo, Venezuela
Agricultural and industrial pumps
[illegible] Corporation ③: Teheran, Iran
Pumps & irrigation systems
[illegible], S.A. ③: Monterrey, Mexico
Agricultural pumps; irrigation systems; petroleum equipment
Syntron (Canada) Limited ②: Stoney Creek, Ontario, Canada
Vibratory equipment; power conversion equipment & components
[illegible]-FMC, Ltd. ②: Brentford, Middlesex, England
Pumps; food processing; waste treatment equipment
[illegible] S.p.A. ③: Genoa, Italy
Vibratory equipment

CHEMICAL GROUP

CHEMICAL RESEARCH & DEVELOPMENT CENTER: Princeton, New Jersey
R&D in organic & inorganic chemicals
INORGANIC CHEMICALS DIVISION: New York, New York
Alkalis, barium chemicals, dry bleach chemicals, chlorine, peroxygen chemicals, phosphates, solvents, sodium sulfate, strontium chemicals
NIAGARA CHEMICAL DIVISION: Middleport, New York
Agricultural insecticides, fungicides, weed killers; industrial sulphurs; basic materials for pesticide formulators; vegetable seeds
ORGANIC CHEMICALS DIVISION: New York, New York
Organic intermediates; plasticizers, diallyl phthalate resin materials; organic phosphorus chemicals, glycerine, acetic acid
PETRO-TEX CHEMICAL CORPORATION ①: Houston, Texas
Butadiene, butylenes, alkylate; maleic anhydride; fumaric acid; neoprene, butyl rubber
INTERNATIONAL OPERATIONS:
FMC Chemical & Viscose International Division: New York, New York
Sales & licensing of products & processes of FMC Chemical and Fiber & Film Groups
Chlor-Chem Ltd. ①: Cambridge, Cambridgeshire, England
Cyanuric acid, dichloroisocyanuric acid & salts, trichloroisocyanuric acid
Electro Quimica Mexicana, S.A. ③: Mexico, D.F.
Hydrogen peroxide
FMC Chemicals Ltd. ②: Squamish, British Columbia, Canada
Chlorine; caustic soda; hydrochloric acid
Foret, S.A. ③: Barcelona, Spain
Industrial & agricultural chemicals
Niagara Chemical Division: Burlington, Ontario, Canada
Agricultural chemicals
Tokai Denka Kogyo, K.K. ③: Tokyo, Japan
Industrial chemicals

FIBER & FILM GROUP

AMERICAN VISCOSE DIVISION: Philadelphia, Pennsylvania
Cellulosic & synthetic fibers, yarns, staple; tire cord; cellophane & plastic packaging films; rayon cord & polypropylene strappings and equipment; palletizing shrink film and heat tunnel equipment; microcrystalline cellulose
KETCHIKAN PULP COMPANY ②: Portland, Oregon
Chemical dissolving wood pulp
INTERNATIONAL OPERATIONS
Plasticos Estruidos, S.A. ③: Mexicali, Mexico
Polypropylene strappings
Viscosa de Chihuahua, S.A. ③: Chihuahua, Mexico
Rayon staple fiber

ORDNANCE GROUP

DEFENSE TECHNOLOGY LABORATORIES: Santa Clara, California
Weapons systems; munitions
NORTHERN ORDNANCE DIVISION: Minneapolis, Minnesota
Naval gun mounts; shipboard missile launching systems
ORDNANCE DIVISION: San Jose, California
Engineering & production of military vehicles, missile & aerospace ground support equipment; ocean engineering

LEGEND
① 50% owned by FMC
② Subsidiary of FMC
③ Affiliated company of FMC
Geographical locations indicate headquarters of each operation; locations of branch plants are not listed.

- 1970 Annual Report

FOREMOST-MC KESSON COMPANY

Financial Profile

Market Value:	(434)	$ 270,986,000
Revenues:	(77)	$1,691,609,000
Assets:	(411)	$ 645,845,000
Net Profit:	(288)	$ 29,203,000

Chief Executive: R.J. Drews
Total Remuneration: $200,000
Value of Shares Owned/Controlled By: $1,098,000

Physical Profile

No. of employees: 18,000

Earnings by Division:

Food Products	33%
Drugs and Health Care	30%
Liquor and Wines	21%
Chemical Distribution............	8%
Land Development.................	8%

Divisions: Foremost Foods Co.
Dairy Division: Fresh milk, ice cream and other dairy products.
Food Products Division: Dried manufactured milk products, grocery shelf items, potato products, whey-based products.
Water Division: Sparkletts, Alhambra, Crystal, Eagle Spring (processed water and water treatment).
Foremost International

Liquor and wine
McKesson Liquor Co,
Wholesale Division
Import Division
"21" Brands
Mohawk Liqeur Corp.
Ezra Brooks Division

Interconnecting Directorates

California Federal Savings and Loan Association; Pacific Lighting Corp. (2); Pacific Gas and Electric Co.; Western Bancorporation; Broadway-Hale Stores, Inc.; Bank of America N.T. & S.A.; Santa Fe Industries; Glore Forgan, William R. Staats Inc., N.Y.; Curtis Scientific Co.; White & Case (law); Bankers Trust Corp.; International Paper Co.; Macfarlane, Schaefer & Haun (law), among others.

GENERAL FOODS CORPORATION

250 North Street, White Plains, New York 10602

Financial Profile

Market Value:	(40)	$2,175,863,000
Revenues:	(55)	$2,045,355,000
Assets:	(199)	$1,360,996,000
Net Profit:	(59)	$ 99,308,000

Chief Executive: C.W. Cook
Total Remuneration: $266,000
Value of Shares Owned/Controlled By: $926,000

71,000 stockholders

Sales Profile:	Overseas	13%
	Canada	7%
	Coffee	28%
	Other grocery	39%
	Food service Institutional and other	13%

Physical Profile

No. of employees: 44,000

Divisions and Products - see following two pages

Interconnecting Directorates

Allied Chemical Corp.; General Motors Corp.; Gulf Oil Co.; Whirlpool Corp. (3); Houston Post Co.; Mutual of New York (4); International Paper Co.; First National City Bank (3); Dun and Bradstreet; Chemical New York Corp.; Connecticut General Insurance Corp.; First National City Corp. (2); Chase Manhattan Corp. (3); Allegheny Ludlum Industries, Inc.; Corpus Christi Bank & Trust; A.O. Smith Corp.; Schlumberger Ltd.; Corporation for Public Broadcasting; KPRC Radio Co.; Metropolitan Life Insurance Co.; American Express Co.; Caterpillar Tractor Co.; Dow Jones Inc.; Eli Lilly & Co. (2), I B M Corp. (2); Royal Dutch Petroleum Co.; U.S. Steel Corp.; Atlantic Mutual Insurance Company; Consolidated Edison Co. of New York Inc.; Fidelity Union Bancorporation; Emhart Corp.; Mobil Oil Corp. (2), among others.

General Foods
Divisions & Products

BIRDS EYE DIVISION

Alexander N. Brainard
Division President & GF Vice President

Products: Awake, Orange Plus, Concentrated Fruit Juices, Birds Eye Vegetables, Recipe-Prepared Vegetables, Deluxe Vegetables, International Vegetables, Quick Thaw Fruits, Onion Rings, Cool Whip Non-Dairy Whipped Topping, Cool'n Creamy Frozen Puddings.

Locations: Searcy, Ark.; Florence Villa, Fla.; Nampa, Idaho; Lafayette, Ind.; Waseca, Minn.; Hillsboro, Woodburn, Ore.; Walla Walla, Wash. + BIRDS EYE, INC., Avon, Fulton, N.Y. + CALIFORNIA VEGETABLE CONCENTRATES, Modesto, Saticoy, Calif. + BIRDS EYE DE MEXICO, S.A. de C.V., Celaya, Mexico.

JELL-O DIVISION

Raymond B. Rudy, Jr.
Division President & GF Vice President

Products: Jell-O Brand Desserts—Gelatin, Pudding & Pie Filling, Instant Pudding, Golden Egg Custard Mix, Whip'n Chill, Tapioca Puddings, Jell-O 1•2•3, Cheesecake, Pie Mixes; Minute Tapioca; D-Zerta Low Calorie Desserts & Topping Mix; Dream Whip Whipped Topping Mix; Minute Rice & Deluxe Rice Mixes; Calumet Baking Powder; Baker's Chocolate & Coconut; Certo & Sure-Jell Pectins.

Locations: Hollywood, Calif.; Dover, Del.; Lafayette, Ind.; Chicago, Ill.; Woburn, Mass. + FRANKLIN BAKER COMPANY OF THE PHILIPPINES, Davao, San Pablo, Republic of the Philippines.

KOOL-AID DIVISION

William C. Wahl
Division President & GF Vice President

Products: Kool-Aid soft drink mixes; Twist Imitation Ade Mixes; Good Seasons Salad Dressing Mixes; Open Pit Barbecue Sauces; Shake'n Bake Seasoned Coating Mixes; Kool Pops pop bars; Toast'em Pop-Ups and Toast'em Danka Toaster Danish; Swans Down Cake Flour & Mixes; LaFrance Whitener-Brightener.

Locations: Chicago, Ill.; Evansville, Ind.; Pendleton, Ore.

MAXWELL HOUSE DIVISION

James W. Andrews
Division President & GF Vice President

Products: Maxwell House, Yuban, Sanka Brand 97% Caffein Free Coffees; Instant Maxwell House, Instant Yuban, Instant Sanka Brand 97% Caffein Free Coffees; Maxim Freeze-Dried Coffee; Freeze-Dried Sanka; Maxwell House Electra-Perk.

Locations: San Leandro, Calif.; Jacksonville, Fla.; Hoboken, N.J.; Houston, Tex.

POST DIVISION

Ralph L. Cobb
Division President & GF Vice President

Products: Post Cereals—Alpha-Bits, Post Toasties, Grape-Nuts, 40% Bran Flakes, Grape-Nuts Flakes, Raisin Bran, Cinnamon Raisin Bran, Super Sugar Crisp, Honeycomb, Fortified Oat Flakes, Frosted Rice Krinkles, Crispy Critters, Pebbles, Post-Tens, Treat-Pak; Instant Postum; Start and Tang Instant Breakfast Drinks; Log Cabin Syrups; Pet Foods—Gaines Meal, Biscuits, Bits, Gravy Train, Gaines-burgers, Prime, Prime Variety, Top Choice.

Supplying: Folding cartons.

Locations: Kankakee, Ill.; Topeka, Kan.; Battle Creek, Mich.; Saratoga Springs, N.Y.

Food Service Units

INSTITUTIONAL FOOD SERVICE DIVISION

Joseph F. Abely
Division President & GF Vice President

Supplying: Institutional-size coffees, desserts, frozen foods, and other products for food service customers—restaurants, hotels, schools, hospitals. Individual-serving beverages and products for vending machines, as well as Kernel-Fresh Nuts and Popcorn products.

Location: Suffolk, Va.

BURGER CHEF SYSTEMS, INC.

Philip A. Korn
President & GF Vice President

Supplying: Quality food and quick service for people on the move. More than 1,100 Burger Chef family restaurants are located in most of the 50 States.

Headquarters: Indianapolis, Ind.

GENERAL FOODS, LIMITED (CANADA)

Robert S. Hurlbut
President & GF Vice President

Products: Maxwell House, Yuban, Sanka Regular & Instant Coffees; Maxim Freeze-Dried Coffee; Freeze-Dried Sanka; Jell-O Desserts; Minit Tapioca; Post Cereals; Baker's Chocolate & Coconut; Kool-Aid; Minute Rice; Cool Whip; Tang; Start; Awake; Sun-Up; Minute Breakfast; Dream Whip; Shake'n Bake; Good Seasons Dressings; Certo; Hostess Snack Foods; Gaines Pet Foods.

Headquarters: Toronto, Ont., Canada.
Locations: Cobourg, Ont.; La Salle, Que., Canada
HOSTESS FOOD PRODUCTS LIMITED, Preston, Ont., Kentville, N.S. + WHITE SPOT LIMITED, Vancouver, B.C. + CANTERBURY GRENADIER LIMITED, Toronto, Ont. + BURGER CHEF SYSTEMS (Canada) LIMITED, Toronto, Ont., Canada.

GENERAL FOODS INTERNATIONAL

George Bremser, Jr.
President & GF Group Vice President

GENERAL FOODS EUROPE, Brussels, Belgium

James H. Whitcomb
General Manager & GF Vice President

H. W. Pykala, Director, External Development
GENERAL FOODS LIMITED, Banbury, England
W. K. T. Drake, Managing Director
ALFRED BIRD & SONS (IRELAND) LIMITED, Dublin, Ireland
T. J. Harris, Managing Director
GENERAL FOODS G.m.b.H., Elmshorn/Holstein, Germany
S. T. Hinkes, General Manager
GENERAL FOODS SCANDINAVIA, Stockholm, Sweden
J. P. McManus, Managing Director
COMPANIA GENERAL DE SOLUBLES, S.A., Madrid, Spain
R. H. Coffin, Jr., General Manager
GENERAL FOODS BENELUX, Brussels, Belgium
C. S. B. Langford, General Manager
RIJSTPELLERIJEN N. & C. BOOST N.V., Merksem, Belgium
A. G. Boost, Managing Director
GENERAL FOODS FRANCE S.A., Rueil-Malmaison, France
Pierre Lemonnier, President
Vice President, General Food International
ELAH S.p.A., Genova-Pegli, Italy
W. Kistiakovsky, General Manager—GF Italy
Guido de Luca, Managing Director—Elah

GENERAL FOODS LATIN AMERICA/PACIFIC

David K. Evans
General Manager & GF Vice President

GENERAL FOODS DE MEXICO, S.A., Mexico City, Mexico
W. E. Brown, General Manager
LA INDIA, C.A., Caracas, Venezuela
E. H. Wedepohl, General Manager
KIBON S.A., Sao Paulo, Brazil
G. D. Westrop, General Manager
COTTEE'S GENERAL FOODS LIMITED, Sydney, Australia
J. S. Winkles, Region Director
GENERAL FOODS, LTD., Tokyo, Japan
E. J. Fuhrman, General Manager
GENERAL FOODS, INC., San Juan, Puerto Rico
D. J. Hughes, General Manager

EXPORT & MILITARY OPERATIONS

J.R. Torrens, *Director*

DISTRIBUTION—SALES SERVICES DIVISION

Robert A. Stringer
General Manager & GF Vice President

Locations: Los Angeles, San Francisco, Calif.; Denver, Col.; Newark, Del.; Washington, D.C.; Jacksonville, Fla.; Atlanta, Ga.; Chicago, Quincy, Ill.; Indianapolis, Ind; Boston, Mass.; Detroit, Mich.; Minneapolis, Minn.; Kansas City, St. Louis, Mo.; Omaha, Neb.; Clifton, N. J.; Syracuse, N.Y.; Charlotte, N.C.; Cincinnati, Youngstown, Ohio; Portland, Ore.; Memphis, Tenn.; Dallas, Tex.

Non-Food Units

VIVIANE WOODARD CORPORATION

J.I. Levin, *President & GF Vice President*

Supplying: A prestige line of high fashion cosmetics and personal care products to consumers, in their homes and by appointment only, through beauty consultants.

Headquarters: Panorama City, Calif.

W. ATLEE BURPEE COMPANY

William D. MacDowell, *President*

Supplying: Quality products for home gardens and lawns —flower and vegetable seeds; flower bulbs; nursery stock; house plants; and gardening aids.

Headquarters: Philadelphia, Pa.
Locations: Riverside, Lompoc, Santa Paula, Calif.; Sanford, Fla.; Clinton, Iowa; Doylestown, Pa.

KOHNER BROS., INC.

Oran G. Kirkpatrick, *President*

Supplying: Toys, games, and puzzles for infants and preschool children which educate as they entertain.

Location: East Paterson, N. J.

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GETTY OIL COMPANY

3810 Wilshire Boulevard, Los Angeles, California 90010

Financial Profile

Market Value:	(71)	$1,313,622,000
Revenues:	(127)	$1,221,170,000
Assets:	(124)	$1,946,303,000
Net Profit:	(54)	$ 111,146,000

Chief Executive: J. Paul Getty
Total Remuneration: $208,000
Value of Shares Owned/Controlled By: $853,681,000

Stockholders: 7,289   1,645,000 average number of shares outstanding

Physical Profile

No. of employees: 13,000

Subsidiaries - see following page

Agricultural holdings - see following page "Real Estate."

Interconnecting Directorates

Bank of America, N.T. & S.A.
Eastman Dillon, Union Securities & Co.
Hecht, Hadfield, Hays, Landsman & Head
Security Pacific National Bank
Pacific Mutual Life Insurance Co.
Carnation Co.
Kuhn, Loeb & Co.
Great Atlantic and Pacific Tea Co.
Lehman Bros.
University of Southern California (chancellor)
Litton Industries, Inc.
Southern California Edison Co.
among others.

Getty Oil Company Wholly Owned Subsidiaries

Associated Oil Company (California)
Club Pierre Marques, S.A. (Mexico)
Distribuzione Olii Minerali S.p.A. (Italy)
Getty Iran Ltd. (Delaware)
Gettymar Corporation (Liberia)
Getty Minerals Company, Limited (Canada)
Getty Mines, Limited (Canada)
Getty Mining Pacific, Limited (Canada)
Getty Mining Northwest, Limited (Canada)
Getty Oil Arctic, Limited (Canada)
Getty Oil (Canadian Operations), Ltd. (Canada)
Getty Oil Company, Ltd. (Alberta)
Getty Oil (Eagle Basin), Ltd. (Alberta)
Getty Oil International (Argentina), Inc. (Liberia)

Getty Oil International (Indonesia), Inc. (Liberia)
Getty Oil International (Latin America), Inc. (Liberia)
Getty Oil Maritime Limited (Canada)
Getty Oil Northwest Territories, Ltd. (Canada)
Getty Oil (Philippines) Inc. (Philippines)
Getty Petroleum Company (Liberia)
Getty Pipe Company (Pennsylvania)
Getty Pipe Line Company (Texas)
Getty Tankers, Ltd. (Liberia)
Hemisphere Transportation Corporation (Liberia)
Huiles Veedol France S.A. (France)
Liberian Operations, Inc. (Liberia)
Liberian Operations Limited (England)
Lubrificanti Veedol S.p.A. (Italy)
Minnehoma Land and Farming Company (California)
Pacific Western Oil Corporation (Delaware)
Seaside Oil Corporation (Delaware)
S. P. Oil Company (United Kingdom)
Sutton Place Property Company, Limited (England)
Transoceanic Shipping Corporation (Liberia)
Veedol Espanola S.A. (Spain)
Veedol G.m.b.H. (Germany)
Veedol Oil Company (Canada) Ltd. (Canada)
Veedol Petroleum International A.G. (Switzerland)

Getty Oil Company Consolidated Companies

Mission Corporation (Nevada)
  Skelly Oil Company (Delaware)
Nuclear Fuel Services, Inc. (Maryland)

Getty Oil Company Nonconsolidated Companies

Mitsubishi Oil Company (Japan) 48.7%
  [illegible] Inc. (California) 71.19%

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Real Estate

During 1970 Getty Oil continued efforts to realize the long-term profit opportunities from increased utilization of its 90,000 acres of California fee land, concentrated primarily in Los Angeles, Ventura, Orange, Santa Barbara, Kern and Fresno counties. The real estate holdings include 10,600 acres of urban and suburban property within 60 miles of Los Angeles and 40,000 acres in farming areas in the eastern and western sections of the southern San Joaquin Valley in Kern County. The agricultural fee acreage in California was acquired at an average cost of $96 per acre, beginning in the early 1900's, in conjunction with petroleum exploration and production operations.

On the west side of the San Joaquin Valley 12,300 acres, under lease to four separate tenant farmers, were planted in cotton, sugar beets and seed alfalfa in 1970. Test plantings of olives and pistachio nut trees, comprising a total of 210 acres, continued to undergo evaluation in a program studying the practicability of orchards in the long-term development of diversified farming.

The east side lands, which are located northeast of Bakersfield, are particularly suited for orchard operations. The company owns 1,500 acres of land planted with citrus and almond groves which are operated under farm management agreements and leases. An additional 911 acres are operated by the Minnehoma Land & Farming Company, a Getty Oil subsidiary.

Studies continued during 1970 on preparation of a land-use plan for the development of the company's 10,500-acre Tapo Ranch, which is situated 30 miles northwest of central Los Angeles near Simi Valley, Ventura County.

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THE GREAT ATLANTIC AND PACIFIC TEA COMPANY, INC.

Financial Profile

Market Value:	(185)	$680,926,000
Revenues:	(12)	$ 5,753,692,000
Assets:	(290)	$ 957,073,000
Net Profit:	(151)	$ 53,302,000

Chief Executive: W.J. Kane
Total Remuneration: $126,008
No. of Shares Owned/Controlled By: 1,139

Stockholders: 47,900 24,875,224 average number of shares outstanding

Physical Profile

No. of employees: 125,000 Stores: 4,427

Subsidiaries:
- The Great Atlantic & Pacific Co. of Vermont
- The Great Atlantic & Pacific Tea Co., Ltd.
  - The Great Atlantic & Pacific Co. of Canada, Ltd.
  - A & P Properties Ltd.
  - Metcalfe Foods (Canada) Ltd.
- Nakat Packing Corp.
- American Coffee Corp.
- TAP, Inc.
- Compass Foods, Inc.
- Grees Stores Co., Ltd.
- Super Market Service Corp.
- Vehicle Leasing, Inc.
- Kwik Save, Inc.

Interconnecting directorates

Kuhn, Loeb & Co.; Getty Oil Co.; New York Life Insurance Co. J.P. Morgan & Co., Inc.; Pan American; Federal Price Commission, among others.

GREEN GIANT COMPANY

Le Sueur, Minnesota 56058

Financial Profile

Market Value:	$66,222,000
Revenues:	$197,491,000
Assets:	$145,178,000
Net Profit:	$ 4,279,000

Chief Executive:
Total Remuneration:
No. of Shares Owned/Controlled By:

Physical Profile

No. of employees: 3500

Subsidiaries and Divisions:

- Bama Meats, Inc.
- Container operations
- Copeland Sausage Co.
- Grocery products
- Green Giant of Canada, Ltd.
- Green Giant Home & Garden Centers Inc.
- International operations
- Jolly Green Giant Restaurants, Inc.
- Schweigert Meat Co.

Brand Names:

- Green Giant
- LeSeuer
- Niblets
- Mexicorn
- Dawn Fresh

21 processing plants in the United States
4 can manufacturing facilities satisfies 87% of the company's requirements
Owns or leases 35% of the land it obtains crops from with company employees doing the farming work
- 285,000 acres under cultivation in 19 states and two Canadian provinces

Ten percent of sales revenues go to research which is twice the industry average.

Interconnecting Directorates

McTague, Clark, Holland, Whiteside, Coughlin, Ouellete & Mailloux; Dayton Hudson Corp.; Paine, Webber, Jackson & Curtis; Community Investment Enterprises Inc. (2); The Hillman Co. (and subsidiaries); First National Bank of St. Paul (2); First Bank System, Rex Chainbelt Inc.; Super Value Stores Inc. (Hopkins, Minn.); Burlington Northern Inc.; Minnesota Mutual of Wausau; First National Bank of Minneapolis; Global Marine Inc.; Western Kentucky Gas Co.; Pittsburgh Coke and Chemical Co.; Pittsburgh National Bank; Kollmorgen Corp.; Mars Industries; Medtronic Inc.; Dealers Manufacturing Co.; Cambridge Corp.; Kroy Industries; Toro Manufacturing Corp.; First Trust Co.; Central Research Laboratories Inc.; Allied Bank International; Investors Diversified Service Inc., among others.

H. J. HEINZ COMPANY

P.O. Box 57, Pittsburgh, Pennsylvania 15230

Financial Profile

Market Value:	(276)	$499,879,000
Revenues:	(194)	$881,171,000
Assets:	(401)	$669,542,000
Net Profit:	(262)	$ 32,571,000

Chief Executive: R.B. Gookin
Total Remuneration: $262,000
Value of Shares Owned/Controlled By: $486,000

Stockholders: 11,407 13,252,859 average common stock shares outstanding

Physical Profile

No. of employees: 34,000

World Locations

World Headquarters

P. O. Box 57
Pittsburgh, Pa. 15230

North America

Heinz U.S.A. Division
Pittsburgh, Pa.
Norman E. Daniels, President

Factories:
- Salem, N. J.
- Chambersburg, Pa.
- Pittsburgh, Pa.
- Winchester, Va.
- Fremont, Ohio
- Bowling Green, Ohio
- Holland, Mich.
- Lakeview, Mich.
- Muscatine, Iowa
- Tracy, Calif.
- Stockton, Calif.

Star-Kist Foods, Inc.
Terminal Island, Calif.

Wholly-owned subsidiary;
acquired in 1963.
Joseph J. Bogdanovich, President

Factories
- Terminal Island, Calif.
- Ilo, Peru
- Coishco, Peru
- Pago Pago, American Samoa
- Mayaguez, Puerto Rico

Cold Storage Stations:
- Senegal
- Ghana
- Liberia
- Republic of the Congo
- Paita, Peru

Ore-Ida Foods, Inc.
Boise, Idaho

Wholly-owned subsidiary;
acquired in 1965.
Robert K. Pedersen, President

Factories:
- Ontario, Ore.
- Burley, Ida.
- Greenville, Mich.

H. J. Heinz Company of Canada Ltd.
Toronto, Ontario
Wholly-owned subsidiary;
established in 1909
Albert Forsyth, President

Factory:
- Leamington, Ont.

Latin America and Pacific

H. J. Heinz Company of Australia Ltd.
Dandenong, Victoria

Wholly-owned subsidiary;
established in 1935
Fred V. Kellow, Managing Director

Factory:
- Dandenong, Victoria

Alimentos Heinz C.A.
Valencia, Carabobo, Venezuela

100% Heinz owned;
established in 1959
John Johnson, President

Factory:
- San Joaquin, Carabobo

Nichiro Heinz Company Ltd.
Tokyo, Japan

80% Heinz owned;
established in 1961.
Ernest W. Barr, President

Factory:
- Kuriham

Heinz Alimentos S.A. de C.V.
Mexico City, Mexico

80% Heinz owned; acquired in 1963
Gerald K. Warner, President

Factories:
- Salamanca, Guanajuato
- Los Robles, Veracruz
- Loma Bonita, Oaxaca
- Los Mochis, Sinaloa

(continued on following page)

Interconnecting Directorates

Mellon National Bank and Trust Co. (4); Bank of America, New York; Bankers Trust New York Corp.; General Motors Corp.; PPG Industries; Aluminum Company of America; Armco Steel; Mine Safety Appliance Co.; Shenango Furnace Co., among others.

1969

Agriculture

Long-term agricultural programs continued to benefit the company in two ways: by increased independence from crop gluts and scarcities, and by leadership in research for better crop strains and more efficient harvesting methods.

For many years it has been Heinz policy to make contracts for major ingredients in advance of the growing season, and to do so with growers throughout the country. Geographical diversification in contracting has brought us close to our goal of having assured supplies even when some areas experience poor harvests. In fiscal 1970, despite unfavorable growing conditions in a number of areas, we achieved 100 percent of our required quantities of all contracted crops.

Mechanical harvesting, more efficient and economical than hand labor, is being used increasingly for Heinz crops. Our California tomato crop is 100 percent machine harvested. During calendar 1970 our cucumber acreage will be 40 percent machine harvested, a sharp rise over previous years. Within a very few years, complete mechanical harvesting of all our requirements in both crops is expected, making us less dependent on increasingly scarce and expensive hand labor.

Progress is being made in new planting methods as well as in harvesting. A dissolvable plastic tape with encapsulated seeds has been developed to permit precision planting in terms of seed spacing and depth. The uniformity of the resulting crops makes them more suitable for mechanical harvesting. The new taped seed method is being used extensively for our California cucumber crop and to a lesser extent for our acreage in the Midwest. The same system is being applied to tomato crops in both northern and southern growing areas.

Advances in bulk handling also have contributed to more efficient and economical agricultural operations. The bulk handling technique makes use of special vehicles that are able to transport large quantities of crops from field to factory, without requiring hand labor to pack the harvest into individual containers. The vehicles can also dump their loads directly into storage areas at the receiving plant without requiring labor for unloading. During fiscal 1970 the percentage of tomatoes received in bulk at our Ohio factories rose to 50 percent, while 18 percent of the California tomato crop was shipped and received in bulk. This economical handling method is also being used increasingly for cucumbers.

World Locations (continued)

Europe

H. J. Heinz Company Limited
Hayes, Middlesex, England

91.16% Heinz owned;
established in 1905
Anthony de la P. Beresford, Vice Chairman
Anthony J. F. O'Reilly, Managing Director

Factories:
Harlesden (London)
Kitt Green
Standish

W. Darlington and Sons (Holdings) Ltd.
Angmering, Sussex (acquired in 1969)
Robert G. Darlington, Managing Director

Pickerings Foods Ltd.
Hayes, Middlesex
George Popham, Managing Director

Factories:
Didcot, Berks
Halnaker, Chichester
Wellingborough, Northamptonshire
Shrewsbury, Shropshire
Coleraine, Northern Ireland

Heinz-Erin Ltd.
Dublin, Ireland
50% Heinz owned; established in 1967
to market products of Erin Foods, Ltd.
in the United Kingdom
Charles F. Lowe
Brendan G. Doyle
Managing Directors

H. J. Heinz A/S
Copenhagen, Denmark

Established in 1969 to market
Heinz products in Denmark
Dennis F. J. Shattock, Chairman

H. J. Heinz N.V.
Elst, Gelderland, The Netherlands

Wholly-owned subsidiary,
acquired in 1[illegible]
Arnold A. Reuvekamp, Managing Director

Factory:
Elst, Gelderland

H. J. Heinz Company (Belgium) S.A./N.V.
Brussels, Belgium
Arnold A. Reuvekamp, Managing Director

Industrias de Alimentacao Limitada
Lisbon, Portugal

70% owned by H. J. Heinz Company N.V.,
The Netherlands; acquired in 1965
Jorge Giralt, General Manager

Factories:
Vila Franca de Xira
[illegible]

Industria de Produtos Agricolas Desidratados, Lda.
Vila Franca de Xira, Portugal

50% Heinz owned
Jorge Giralt, General Manager

Factory:
Vila Franca de Xira

Societa del Plasmon S.p.A.
Milan, Italy

Wholly-owned subsidiary,
acquired in 1963
Dr. Aldo Tartarelli, Managing Director

Factory:
Milan

Societa del Plasmon, Sud., S.p.A.
Latina, Italy
Dr. Aldo Tartarelli, Managing Director

Factory:
Latina

1970

Agriculture

Developments in agriculture underscored efforts of the North American group to become increasingly independent of commodity cycles through greater reliance on modern growing, harvesting, handling and storage techniques. Heinz U.S.A.'s mechanically-harvested cucumber acreage doubled compared with the previous year and should double again in the current fiscal year. Harvesting of the California tomato crop is already entirely mechanized, and mechanical harvesting is increasing rapidly in other areas of the country. During the coming year there should be a 100 percent increase in machine harvesting of tomato crops in the East and Midwest.

The factories at Fremont and Bowling Green, Ohio were completely converted to bulk handling of tomatoes, with receiving tanks, elevators, flumes and water flows all adapted to this method, which reduces labor costs and waste.

Heinz of Canada, which had access to the best tomato harvest in five years, successfully tested a new bulk handling system that will be able to handle approximately 60 percent of this year's tomato crop.

Agricultural research facilities were expanded during the year in both Ohio and California.

Heinz laboratories developed two new tomato varieties, one for use in California and one for use in the East, both suitable for mechanical harvesting. Good progress has been achieved also in development of disease-resistant tomato strains and dwarf cucumber hybrids.

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J. G. BOSWELL COMPANY

P.O. Box 877, Corcoran, California

Financial Profile

Sales volumne is approximately $50,000,000 a year

Physical Profile

Land ownership:

Held in own name	32,364 acres
Boston Ranch	37,555 acres
Crockett-Gambody (controls)	28,503 acres
Tulare Lake Land Company (controls)	10,392 acres
	108,814 acres

Also owns 500 acres of grapes in Arizona (accounts for 1% of business)
Auscott Ltd. (Australian subsidiary)
10,000 acres of cotton producing land 250 miles northwest of Sydney (approximately one-seventh of the country's cotton acreage.
Received some $500,000 in 1968 from the Australian government in 1968 (as a bounty to stimulate production) to grow cotton. In 1970 the Company received $600,000

Cotton ranching, ginning, edible oil, cattle feed and produce

No. of employees: 1500

Operation Notes

ASCS Subsidy Payments ($21,442,104)

1966	J.G. Boswell	$2,807,633	Boston Ranch	$ 506,061
1967	J.G. Boswell	$4,091,818	Boston Ranch	$ 458,020
1968	J.G. Boswell	$3,010,042	Boston Ranch	$ 448,198
1969	J.G. Boswell	$4,370,657	Boston Ranch	$ 643,006
1970	J.G. Boswell	$4,429,484	Boston Ranch	$ 677,225
		$18,709,634		$2,732,470

Combine of 53 investors paid Boswell $1.3 million for a one-year lease (1971) of the firm's cotton allotments. They also paid Boswell to farm the leased land. Each participant is eligible to receive the 1971 maximum ASCS payment of $55,000. In the meantime the Company planted 25% more cotton in 1971 than previous years.

Boston Ranch Co. owns 22,381 acres which is "eligible" for federally subsidized water in the Westlands Water District. As of July 30, 1970 none of this acreage was contract to be sold as"excess land." The Company also receives water in other CVP ares: Kaweah Delta 6,630 acres and Lower Tule River 4,916 acres.

Interconnecting Directorates

Safeway Stores Inc. (2): Security Pacific National Bank, Caterpillar Tractor Co.; Bank of California, N.A.; Fibreboard Corp.; Southern Pacific Co.; Merrill Lynch, Pierce, Fenner & Smith; Cal Tech, among others.

KAISER INDUSTRIES CORPORATION

Kaiser Center, 300 Lakeside Drive, Oakland, California 94604

Financial Profile

Market Value:	(388)	$326,887,000
Revenues:		$313,241,000
Assets:	(457)	$569,708,000
Net Profit:	(346)	$ 23,275,000

Chief Executive: Edgar F. Kaiser
Total Remuneration: $381,000
Value of Shares Owned/Controlled By: $137,877,000

Physical Profile

No. of employees: 13,000

Multinational wholly and partially owned facilities and operations Western Hemisphere Only - see following page

PRINCIPAL PRODUCTS

Alumina

Aluminum
Ingot/Billet
Flat and Coiled Sheet
Plate/Circles
Cans/Can Stock
Industrial and Packaging Foils
Bare and Laminated Foil
Semi-Rigid Foil Containers
Residential Siding
Rain Carrying Equipment
Sign Blanks/Nails/Louvered Screening
Agricultural and Commercial Roofing/Siding
Culvert and Drainpipe Products/Forgings/Extruded Shapes
Rod, Bar and Wire
Forging Stock/Screw Machine Stock
Electrical Conduit, Wire and Cable
Electrical Conductor Accessories
Street Light Standards/Bus Bar
Aluminum Conductor Contact Rail
Transmission Towers/Welding Wire
Mobile Home Panels/Skirting Kits
Soffit/Fascia
Ornamental Shutters/Shingles
Architectural and Industrial Panels

Agricultural Chemicals
Anhydrous Ammonia
Nitrogen Solutions (direct application and manufacturing)
Liquid and Solid Urea, Nitric Acid
Prilled Ammonium Nitrate, Superphosphate
Ammonium Nitrate, Ammonium Nitrate Liquor
Calcium Ammonium Nitrate, Mixed Fertilizers (solids, liquids, suspensions), Aqua Ammonia
Liquid Feed Products
Lawn and Garden Specialty Fertilizers
Blasting Agents

Bauxite

Coke

Dolomitic Rock Products
Architectural Sand and Stone
Glass Sands
Industrial Liming Grades
Fillers and Extenders

Industrial Chemicals
Special Aluminas (Tabular, Calcined, Hydrated and Active)
Caustic Soda/Chlorine
Anhydrous Hydrogen Fluoride
Fluorocarbons/Aluminum Fluoride/Synthetic Cryolite
Isocyanates/Polyamines/Potash

Iron Ore

Magnesium
Magnesium Extrusions and Anodes
Fabricated Magnesium Products
Melting Flux

Manufactured Building Systems

Nickel

Refractories
Basic Refractory Brick and Specialties
Periclase/Magnesite
Deadburned Magnesite/Fireclay
High Alumina and Fireclay Brick
Fireclay and High Alumina Specialties
Insulating Refractories
Super Refractories
Deadburned Dolomite
Magnesium Hydroxide

Specialty Building Panels
Laminated Porcelain/Enamel/Steel Panels
Ceramic Panels
Laminated Aluminum Panels
Chalkboard
Aggregate Panels
Cement Asbestos Panels

Strontium Products
Strontium Carbonate
Strontium Nitrate
Sodium Sulphate

Interconnecting Directorates

Bankamerica Corp. (2); Time, Inc.; Broadway-Hale Stores Inc.; Di Giorgio Corp.; Bank of America N.T. & S.A.; Standard Oil of California; Wilmer, Cutler & Pickering; First Boston Corp. (2); Thelen, Marrin, Johnson & Bridges; Consolidated Foods Corp.; Massachusetts Institute of Technology (communications biophysics); The New York Times, among others.

THE MULTINATIONAL WORLD OF KAISER ALUMINUM & CHEMICAL CORPORATION

Wholly and Partially Owned Facilities and Operations

(Western Hemisphere Only)

United States

Alabama
aluminum fabricating at Bay Minette.

Arizona
real estate and land development at Kaiser Aetna's McCormick Ranch, Phoenix industrial park.

California
aluminum fabricating at Anaheim, Benicia, Los Angeles, Oxnard, Permanente, Sacramento, San Leandro, South San Francisco, Union City; *chemicals* at San Leandro; *refractories* at Moss Landing, Natividad; *manufactured buildings* at Newark; *real estate and land development* at Westward Properties' The City; at Kaiser Aetna's Kearny Industrial Park, Rancho California, So. Center Industrial Park, Warner Ranch, Rancho Ventura, Aliso Ranch, San Tomas Industrial Park, Anderson Ranch, Butte Farms, Rancho San Luis.

Colorado
refractories at Denver.

Florida
aluminum fabricating at Jacksonville, Lantana; *chemicals* at Brooksville, Mulberry, Tampa.

Georgia
aluminum fabricating at Douglas; *chemicals* at Bainbridge, Savannah.

Hawaii
real estate and land development at Kaiser Aetna's Hawaii-Kai.

Illinois
aluminum fabricating at Dolton.

Indiana
raw materials at Gary; *aluminum fabricating* at Bedford, Elkhart, Wanatah.

Kentucky
aluminum fabricating at Louisville.

Louisiana
raw materials at Baton Rouge, Chalmette, Gramercy, Norco; *primary aluminum* at Chalmette; *chemicals* at Baton Rouge, Gramercy.

Maryland
aluminum fabricating at Halethorpe; *refractories* at Frostburg.

Mississippi
raw materials at Purvis.

Missouri
refractories at Mexico.

New Jersey
aluminum fabricating at Edison.

New York
aluminum fabricating at Schenectady.

North Carolina
chemicals at Wilmington.

Ohio
aluminum fabricating at Belpre, Newark, Toledo; *chemicals* at Cincinnati; *refractories* at Columbiana; *manufactured buildings* at Delaware.

Oklahoma
magnesium fabricating at Tulsa.

Oregon
aluminum fabricating at Salem; *real estate and land development* at Kaiser Aetna's Port Westward.

Pennsylvania
aluminum fabricating at Erie, Lancaster; *building panel fabrication* at Port Carbon.

Rhode Island
aluminum fabricating at Bristol, Portsmouth.

Tennessee
chemicals at Big Springs.

Texas
aluminum fabricating at Arlington, Houston, Sherman.

Utah
chemicals at Wendover.

Washington
raw materials at Spokane; *primary aluminum* at Spokane, Tacoma; *aluminum fabricating* at Spokane, Vancouver.

West Virginia
primary aluminum, aluminum fabricating at Ravenswood.

Canada
refractories from Kaiser Refractories Co., Division of Kaiser Aluminum & Chemical Canada Ltd. at Oakville, Ontario; *celestite* from Kaiser Celestite Mining Ltd.* at Pt. Edward, Nova Scotia; *strontium compounds* from Kaiser Strontium Products Ltd.* at Pt. Edward, Nova Scotia; *fabricated aluminum* from Kaiser Aluminum Co., Division of Kaiser Aluminum & Chemical Canada Ltd. at Scarborough, Ontario; *iron ore* from Texada Mines Ltd. at Texada, British Columbia.

Jamaica
bauxite from Kaiser Bauxite Company at Discovery Bay; *alumina, bauxite* from Alumina Partners of Jamaica at Nain.

Brazil
fabricated aluminum from Kaiser Aluminio do Brasil S.A. at Lorena; *international trading* from Kaiser Trading in Sao Paulo.

Argentina
fabricated aluminum from Kaiser Aluminio S.A. at Buenos Aires; *refractories* from Kaiser Refractarios, S.A. at Buenos Aires; *international trading* from Kaiser Trading in Buenos Aires.

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LITTON INDUSTRIES INC.

360 North Crescent Drive, Beverly Hills, California 90210

Financial Profile

Market Value:	(226)	$599,592,000
Revenues:	(45)	$ 2,404,327,000
Assets:	(125)	$ 1,934,012,000
Net Profit:	(101)	$ 68,751,000

Chief Executive: C.B. Thornton
Total Remuneration: $167,000
Value of Shares Owned/Controlled By: $22,616,000 (common stock)

Physical Profile

No. of employees: 118,000

MAJOR DIVISIONS
- Business Machines and Systems
- Retail and Revenue Systems
- Typewriters and Office Copiers
- Specialty Paper, Printing and Forms
- Business Furnishings and Fixtures
- Navigation and Control Systems
- Communications and Electronic Data Systems
- Marine Engineering and Production
- Material Handling
- Engineering and Construction
- Electronic Components
- Electric Motors, Power Drives and Controls
- Medical Products
- Educational and Professional Publishing
- Resource Exploration
- Food Products and Service
  - Atherton, Stouffer Food, Stouffer Food Systems and Stouffer Restaurant & Inn

Interconnecting Directorates

Pacific Mutual Life Insurance; Bankamerica Corp.; Bank of America N.T. & S.A.; Western Bancorporation; Security Pacific National Bank; Pacific Gas and Electric; Wells Fargo & Co.; United Aircraft Corp.; United Air Lines, Inc.; Consolidated Natural Gas System, Lohman Bros.; Getty Oil Co., among others.

LUCKY STORES, INC.

1701 Marina Boulevard, San Leandro, California 94577

Financial Profile

Market Value:	(301)	$ 445,772,000
Revenues:	(95)	$1,488,715,000
Assets:		$ 275,234,000
Net Profit:	(343)	$ 23,475,000

Chief Executive: G.A. Awes
Total Remuneration: $338,409
Value of Shares Owned/Controlled By: $1,962,000

Stockholders: 25,276 12,781,766 average shares common stock outstanding

Physical Profile

No. of employees: 26,000

428 retail stores
252 supermarkets
70 discount stores
28 membership department stores
32 drug stores
43 ladies apparel stores
3 sporting goods stores

Lucky, through subsidiaries is also involved in an automotive warehouse distributor, milk processing plant, meat distributor, and deli packaging plant.

Interconnecting Directorates

Chabot College; Diepenbrock, Wulff, Plant & Hannegan; Bank of America; Pacific Power and Light Co; Stanford & McDonough; Donahue, Gallagher, Thomas & Woods; Allied Properties, among others.

THE NEWHALL LAND AND FARMING COMPANY

Financial Profile

Market Value: $58,139,000
Revenues: $31,127,000
Assets: $110,276,000
Net Profits: $ 2,850,000

Chief Executive: Thomas L. Lowe
Total Remuneration: $72,400
No. of Shares Owned/Controlled By: 34,632

Income distribution:
  Agriculture and Cattle $21,957,000
  Land Sales ....$ 1,713,000

Physical Profile

No. of employees: 500

Subsidiaries:
- North American Dehydrating Corp.
- Ranchers Supply Co.
- Valencia Water Company
- Valencia Recreation Enterprises, Inc.

White Investment Co., owned exclusively by the Newhall family, holds 1,532,000 shares (29%) of the Compan stock.

Acreage - see following page

Operation Notes

ASCS Subsidy Payments - see following page

Interconnecting Directorates

Castle & Cooke Inc.; Pillmon-Piru Citrus Association; Ventura County Citrus Exchange; Sunkist Growers; Las Pasas Orchard; Western Bancorporation; Pacific Mutual Life Insurance Company; Pacific Telephone & Telegraph Co.; DiGiorgio Corp.; Bank of America N.T. & S.A.; Bankamerica Corp.; Broadway-Hale Stores Inc.(2) Southern Pacific Company; California Portland Cement Co.; Security Pacific National Bank; Concord TV Cable-5 (S.F.); White Investment Company; Brobeck, Phleger & Harrison; Henry Mayo Newhall Foundation, among others.

Name	Year of Acquisition	Acreage
Newhall	1883-1969	41,000
Suey	1883	37,800
New Columbia	1948-1964	28,500
Merced	1954	15,400
Adams and Maxwell	1965-1967	8,500
Meridian	1912	5,500
Wilson	1959-1964	4,800
Burrel	1967	4,100
Cowell	1959-1965	2,300
Mendoza	1963	2,200
Wood	1965	800
Other	1960	150
		151,050

- 1970 SEC Report

ASCS SUBSIDY PAYMENTS:

1970	$400,347
1969	$258,555
1968	$234,432
1967	$181,684
1966	$ 74,418
	$1,149,436

Agriculture and Cattle

Of the lands owned by the Company approximately 50,000 acres are under irrigation and intensive farming, 85% of which are farmed in a diversified way by the Company. During 1970, approximately 30 different crops were harvested by the Company and/or its tenants on its six principal agricultural properties which are scattered throughout the Sacramento and San Joaquin Valleys. Certain lands owned by the Company are located in areas where the water supply is supplemented by federally financed reclamation districts. An ample water supply is expected to be available for current and future agricultural needs. Approximately 60% of the Company's farm crops is marketed through agricultural cooperatives.

Ranch land not now usable for agriculture is, in general, employed in the Company's cattle operation. In 1970, 172,000 additional acres were leased from nongovernment landowners for grazing. The total number of head that were grazed during that year approximated 40,000.

- 1970 SEC Report

NORTON SIMON INC.

277 Park Avenue, New York, New York 10017

Financial Profile

Market Value:	(253)	$ 539,459,000
Revenues:	(165)	$1,014,224,000
Assets:	(364)	$ 747,230,000
Net Profit:	(228)	$ 36,787,000

Chief Executive: D.J. Mahoney
Total Remuneration: $219,000
Value of Shares Owned/Controlled By: $23,000 (common stock)

Physical Profile

Sales by Product Group - see following page

No. of employees: 30,000

Operation Notes

3 canneries converted in 1970 from seasonal to year-round manufacturing
2 seasonal processing plants were closed

Company built a $3.5 million 80,000 square feet Research and Development Center in Fullerton, California

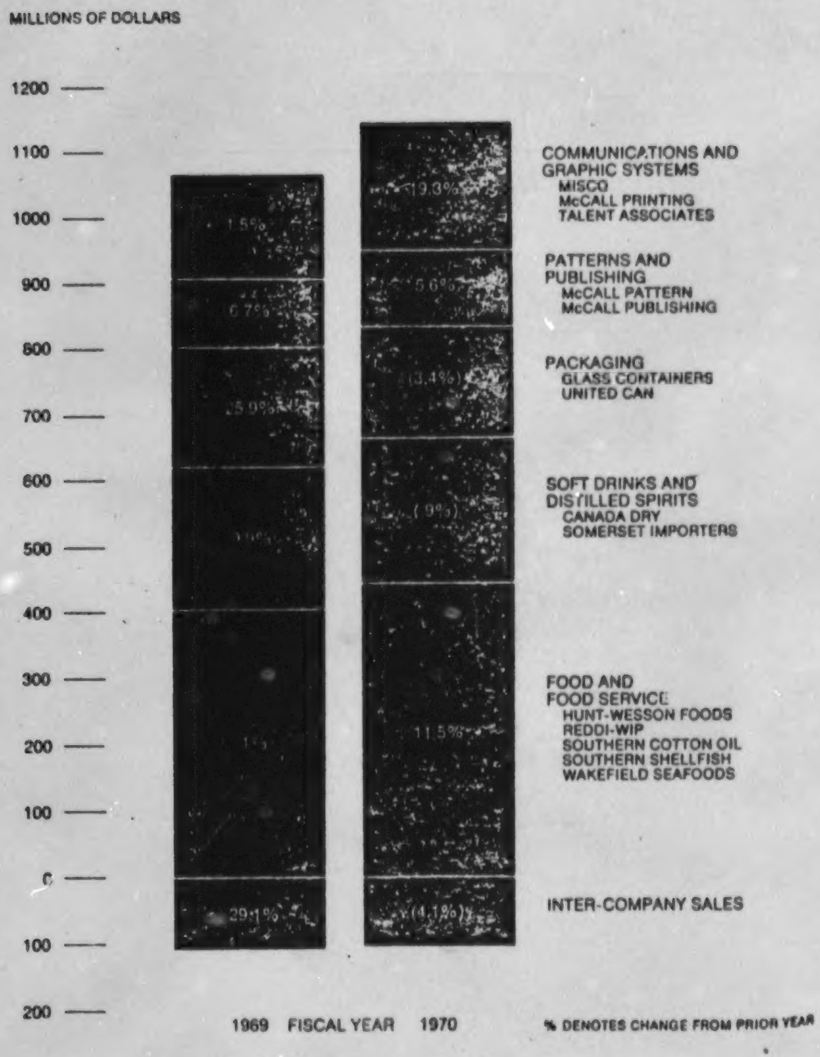
Company employs about 5000 people in the processing of their canned foods, vegetable oil and grocery products in some 25 major plants.

Interconnecting Directorates

Times Mirror Corp.; Bank of America, N.T. & S.A.; Pacific National Life Assurance Co.; Crocker National Corp.; Braniff International; Ling-Temco-Vought (2); Goldman, Sachs & Co.; Golden Leisure Inc.; First Bank System; Burlington Northern Inc.; General Telephone and Electronics Corp.; O'Melveny & Myers; Lerand Inc.; University of California at Los Angeles (business administration); Hallmark Cards Inc.; Ford Motor Co.; Samuel H. Kress Foundation, among others.

NORTON SIMON INC

SALES BY PRODUCT GROUP



- 1970 Annual Report

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OGDEN CORPORATION

161 East 42nd Street, New York, New York 10017

Financial Profile

Market Value:		$ 122,958,000
Revenues:	(141)	$1,136,227,000
Assets:	(492)	$ 531,724,000
Net Profit:		$ 13,164,000

Chief Executive: R. E. Ablon
Total Remuneration: $150,000
Value of Shares Owned/Controlled By: $913,000

Physical Profile

No. of employees: 44,000

Divisions: Metals, Transportation, Marine Construction, Development, Recreation, and Foods
- Foods
  - Flavor Pict Inc. - a Florida-based grower and marketer of fresh tomatoes.
  - Tillie Foods, Inc. - canners of fruit, tomatoes and other vegetables.
  - Meat packing in Paraguay
  - Hot dogs in Los Angeles' Dodger Stadium, Nedick's in New York, and Doggie Diners on the Pacific Coast.
  - Mass feeding sales through ABC Consolidated.

Ogden bought Western California Canners
Originally bought for approximately $7 million by American Transportation Enterprises in 1967 and later sold to Ogden at cost plus $1 million in expenses.

Interconnecting Directorates

Allen & Co. (investment bankers) (2); PepsiCo Inc.; Wertheim & Co. (investment bankers); Allied Supermarkets, Inc.; Holtzmann, Wise and Shepard (law); Linkletter Enterprises Inc.; Western Airlines Inc.; C F & I Steel Corp., among others.

PACIFIC GAS AND ELECTRIC COMPANY

245 Market Street, San Francisco, California 94106

Financial Profile

Market Value:	(42)	$2,115,103,000
Revenues:	(151)	$1,103,258,000
Assets:	(48)	$4,318,832,000
Net Profit:	(24	$ 166,219,000

Chief Executive: S.L. Sibley
Total Remuneration: $150,000
Value of Shares Owned/Controlled By: $154,000

Sales (Agricultural Power) 3,737,285 KWH +20.6% from 1969
Revenues (Agricultural Power) $53,339,000 +12.5% from 1969

Physical Profile

No. of employees: 24,000

Operation Notes

"Food processing --- the State's largest manufacturing in dollar output --- further expanded to meet the growing domestic and worldwide demand for more convenience type food products. Highlighting this process was the completion of two new "super-canneries," which are the largest and most modern of their type in the world and able to process both fruit and vegetable crops on a virtually uninterrupted basis."

- from the 1970 Annual Report in recounting the accomlishments of PG & E the previous year.

Interconnecting Directorates

Bank of California, N.A. (2); Safeway Stores Inc., Shell Oil Co.; Ridder Publications; Pacific Telephone and Telegraph Co.; Crocker National Corp.; Del Monte Corp. (2); Pillsbury, Madison and Sutro (law); FMC Corp. (2); Wells Fargo & Co. (2); Georgia Pacific Corp.; Litton Industries Inc.; Levi Strauss Co.; Southern Pacific Co.; Western Bancorporation; Foremost McKesson Inc.; Del Monte Properties, Inc.; Amfac Inc., among others.

DISTRIBUTION OF STOCK OWNERSHIP
By Class of Investor, December 31, 1970

	Number of Stockholders	Number of Shares Owned
Women	96,914	17,264,151
Joint and other tenancies	65,235	9,878,862
Men	53,142	9,810,356
Trustees, guardians and other fiduciaries	23,410	3,836,115
Nominees	3,683	25,096,149
Corporations, partnerships and proprietorships	1,834	1,146,635
Charitable and fraternal organizations and foundations	1,501	654,686
Banks and trust companies, investment companies and security dealers	1,004	2,793,110
Religious institutions	544	123,442
Insurance companies	469	4,474,377
Educational institutions	227	91,199
Labor organizations	28	14,196
Total	247,821	75,803,080

- 1970 Annual Report

PACIFIC LIGHTING CORPORATION

P.O. Box 60043 - Terminal Annex, Los Angeles, California 90060

Financial Profile

Market Value:	(306)	$ 441,099,000
Revenues:	(258)	$ 675,342,000
Assets:	(243)	$1,159,035,000
Net Profit:	(218)	$ 38,658,000

Chief Executive:	P.A. Miller
Total Remuneration:	$112,000
Value of Shares Owned/Controlled By:	$1,200,000

Physical Profile

No. of Employees: 9000

Utility Companies

Southern California Gas Company
Pacific Lighting Service Company

Non-Utility Companies

All-Year Weather, Inc.
Blackfield Hawaii Corporation
Central Plants, Inc.
Dual Fuel Systems, Inc.
Dunn Properties Corporation
W. D. Fowler & Sons Corporation
Fredricks Development Corporation
Hawaii real estate service group:
  Hawaii Shopping Center Corporation
  Hawaii Management Corporation
  Hawaii Real Property Corporation
  Don R. Cowell & Associates, Inc.
Pacific Lighting Exploration Company
Pacific Lighting Gas Development Company
Pacific Lighting Properties, Inc.
Pacific Offshore Pipeline Company
Uni-Plant Corporation
Uni-Plant Leasing Company, Inc.

-1970 Annual Report

Recent agribusiness acquisitions - see following page
Regarding pesticide testing see FMC report, page 22.

Interconnecting Directorates

Caterpillar Tractor Co.; Del Monte Corp.; Crocker National Corp. (2); Pacific Telephone and Telegraph Co. (2); Bekins Co.; Bank of America N.T. & S.A. (2); Bankamerica Corp.; Cooper, White and Cooper (law); California Federal Savings and Loan Association; Broadway-Hale Stores Inc.; Santa Fe Industries; Mutual of New York; Wells Fargo & Co.; Leslie Salt Co.; Schilling Estate Co.; Gibson, Dunn, & Crutcher (law); Pacific Mutual Life Insurance Co.; Unionamerica Corp.; Times Mirror Corp.; Western Airlines, Inc.; Bull, Field, Volkmann & Stockwell (architects); Foremost-McKesson Inc. (2); Allied Properties, among others.

Agriculture

W. D. Fowler and Sons Corporation
Headquartered at Terra Bella in the prolific San Joaquin Valley of California, the company is engaged primarily in contract services such as land acquisitions, farming, packing, and the marketing of land and products in Tulare, Kern and Madera counties for investor-owners.

One of Fowler's most interesting and profitable areas of operation is pistachio nuts, and its full-cycle operation—from the nursery through harvesting and marketing—is the largest of its kind in the United States. The company's founder and current President, W. D. Fowler, pioneered development of pistachio nuts as a commercially feasible tree crop in California. Because of limited domestic production, most of the pistachio nuts consumed in this country at present are imported from Iran and the Mediterranean area, thus creating an attractive growth potential in the U.S. for the high-quality California variety.

During 1970, Fowler increased the harvest from its grove of mature trees at Terra Bella from 43,000 to 60,000 dry pounds. It completed planting new groves of pistachio trees on 1,440 acres of land near Madera and sold out approximately half of the acreage to private investors. It also acquired an additional 2,000 acres of land in the Madera area.

In addition to the rapidly expanding pistachio operation, Fowler manages prune, olive and citrus crop acreage for private investors. The company increased its managed acreage of oranges by 600—to a total of 3,140 acres—all in the Terra Bella area. A small citrus packing house, which it owns, more than doubled its output—to 500,000 boxes of fruit—despite growing conditions which limited the 1970 crop. Fowler also acquired approximately 700 acres of selected citrus groves in the central San Joaquin Valley in 1970.

Key executives of Fowler are W. D. Fowler, President; Glen Fowler and D. N. Fowler, Vice Presidents.

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20 Part III—Fri., May 14, 1971 Los Angeles Times ★

Pacific Lighting to Buy Blue Goose Growers

BY RON S. HEINZEL
Times Staff Writer

Pacific Lighting Corp., Los Angeles, took another step in its diversification program Thursday with the announcement that it plans to acquire Blue Goose Growers Inc. for $22,560,000.

Paul A. Miller, president of the utility, announced the plan prior to the annual meeting in San Francisco. Miller said the transaction involves more than $3.6 million in cash, with the balance in notes and assumption of debt.

Included in the group of 28 entities are 10,026 acres of orchard and undeveloped land in California, Arizona, Florida and Maryland. Also included are six farm management companies, 12 packing houses, two regional marketing organizations and headquarters facilities in Fullerton.

Miller said the acquisition is scheduled for completion on June 1.

Expects Profit Gain

The Pacific Lighting president told shareholders the company expects a 25% increase in earnings this year over the $38.6 million or $2.03 per share realized in 1970.

Earnings could fluctuate by up to 40 cents a share for the balance of the year due to weather, he cautioned.

The company is engaged in several natural gas reserve projects in a hemisphere-wide effort to obtain future supplies for its more than 3.1 million customers in central and Southern California, he said.

While Southern California doesn't face the prospect of getting in line for gas, as do other parts of the country, sales of natural gas to large interruptable industrial customers such as power companies will have to be curtailed sharply until deliveries from new supply sources begin, he said.

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PACIFIC MUTUAL LIFE INSURANCE COMPANY

523 West Sixth Street, Los Angeles, California

Financial Profile

Market Value:	$ 5,619,825,416 (34)*
Revenues:	$ 46,789,000 (32)*
Assets:	$ 917,560,195 (33)*
Net Profit:	$ 312,106 (23)*

* = ranking here is according to FORTUNE MAGAZINE' Top 50 Insurance Company rankings.

Physical Profile

No. of employees:	1300

Interconnecting Directorates

Litton Industries; Bankamerica Corp.; Bank of America, N.A. & S.A.; Security Pacific National Bank, Carnation Co.; Crocker National Corp.; Gibson, Dunn & Crutcher (law); Pacific Telephone and Telegraph (2); Del Monte Corp.; Broadway-Hale Stores Inc.; American Telephone and Telegraph Co.; Western Bancorporation (6); Getty Oil Co.; Pacific Lighting Corp.; Unionamerica Corp.; Wells Fargo & Co.; PPG Industries Inc.; Griffith Co.; American Airlines Inc.; Southern California Edison Co (5); Newhall Land and Farming Co. (2); Joshua Hendy International Corp. (steamship operators); Standard Oil of California; International Telephone and Telegraph Co.; Mailliard & Schmiedell; Southern Pacific Co.; Cyrus Mines Corp.; Barker Associated Companies; Western Pacific Railroad Co.; Yosemite Park and Curry Co.; Stanford University (trustee); Amfac, Inc., among others.

PACIFIC TELEPHONE AND TELEGRAPH COMPANY

140 New Montgomery Street, San Francisco, California 94105

Financial Profile

Revenues:	$2,076,283,000
Assets:	$5,260,636,000
Net Profit:	$ 200,660,000

Physical Profile

No. of employees:	98,000

Chief Executive: Jerome W. Hall
Total Remuneration: $128,333
No. of Shares Owned/ Controlled By: 800

Interconnecting Directorates

Bekins Co.; Bankamerica Corp. (2); Bank of America N.T. & S.A. (2); American Potato Co.; Stanford Research Institute; Prudential Insurance Co.; Broadway-Hale Stores, Inc. (2); Standard Oil of California; Bank of California, N.A.; Stauffer Chemical Co.; Crocker National Corp. (3); New York Life Insurance Co.; Pacific Mutual Life Insurance Co. (2); Gibson, Dunn & Crutcher (law); Pacific Gas & Electric Co.; Di Giorgio Corp. (2); Pacific Lighting Corp. (2); Security Pacific National Bank (2); Ducommun, Inc.; American Telephone and Telegraph Co.; Garret McEnerney II (law); Southern California Edison Co.; Western Bancorporation; Newhall Land and Farming Co., among others.

PUREX CORPORATION

5101 Clark Avenue, Lakewood, California 90712

Financial Profile

Market Value: $200,302,000
Revenues: (490) $325,343,000
Net Profit: $ 4,303,000
Assets: $252,385,000

Chief Executive: W.R. Tincher
Total Remuneration: $141,000
Value of Shares Owned/Controlled By: $770,000

Physical Profile

No. of employees: 8000

Divisions:

- Consumer Products
  - Grocery Products
  - Swimming Pool Products
    - Chemicals
    - Equipment
    - Industrial
  - Drugs and Toiletries
- Airmotive Engine Services
  - Aviation Group
- Industrial and Institutional Products Group
- Prosser Industries
  - Aerospace
  - Commercial
  - Navy Products
- Royal Homes Division

AGRICULTURAL GROUP

Freshpict Foods, Inc. is a producer, packer, and shipper of fresh vegetables, operating in California, Arizona and Colorado. Major commodities include lettuce, asparagus, celery, artichokes, canteloupes, broccoli, bell peppers, carrots and onions. In conjunction with the vegetable operations, a number of processing and field crops are grown. Max Feldbaum & Sons and Triple-M Packing are engaged in consumer packaging and the distribution of fruits and vegetables to retailers in the midwest and eastern seaboard areas.

Gonzales Potato Company harvests and processes potatoes for distribution to the potato chipping industry.

FERRY-MORSE SEED COMPANY

Produces and markets vegetable, flower and farm seeds throughout the United States and internationally. Leading vegetable seeds produced include: tomatoes, cucumbers, lettuce, bush beans, peas, radishes, carrots, beets, celery, corn and cabbage. Various farm seeds are produced, such as pasture grasses, alfalfa and milo maize. A tremendous variety of flower seeds are produced, including virtually every kind that is sufficiently popular to be marketed commercially.

Additional material concerning Agricultural Products on following page

Operation Notes

William R. Tincher, Chairman of the Board explains Purex's stand vis-a-vis the United Farm Workers Organizing Committee (AFL-CIO) see following page.

Interconnecting Directorates

L.W. Ludlow & Co. (retail lumber, fuel and real estate investments); Blyth & Co. (investment bankers); Gibson, Dunn & Crutcher (law); Santa Barbara Bay Corp.; Brunswig Drug Co., among others.

SHAREHOLDER: My comment concerns the Agriculture Division which is the only division that lost money last year. I don't believe you realize it but the contracts signed by the United Farm Workers Organizing Committee are illegal. Now, I quote the State Labor Code. As you know, the workers have nothing to do with whether these contracts are signed or not, and they opposed these contracts.

If these contracts are voided, as they legally can be, Purex can make money in the agricultural industry.

And I will quote the section of the California State Labor Code—

CHAIRMAN TINCHER: Let's assume you are correct, sir. Can we get to your question? I think we have a lot of people with questions.

SHAREHOLDER: Okay. What I would like to comment on is, number one, the contracts signed by Purex with the United Farm Workers Organizing Committee are illegal. Let's state that first of all—

CHAIRMAN TINCHER: Let's assume that is correct.

SHAREHOLDER: Why did Purex sign the contracts in the first place?

CHAIRMAN TINCHER: I explained that in great detail last year. In essence, we got blackmailed into it. We lost $800,000 in agricultural operations last year. If we had had to face all the united liberals in this country, fighting Cesar Chavez, saying we wouldn't even recognize his Committee, we would have lost about $8 million in grocery products.

SHAREHOLDER: Wouldn't it have been better to have staged an educational campaign to inform people around the country that the employees did not wish to join this Organizing Committee?

CHAIRMAN TINCHER: We studied that. As a matter of fact, we hired outside public relations experts and we spent hours and hours and hours. We drew up position papers. We figured out what a campaign would cost us.

We were prepared to do whatever was necessary. We found out the cold, hard facts of life, as I said, last year.

The grocers said, "We sympathize with you but we don't want any part of UFWOC and Chavez. We appreciate your problems but get these nuts away from circling our stores and throwing our merchandise inside the store on the floor. It's your problem."

It was a situation none of us liked. If we hadn't done what we did, though, we wouldn't have been inside the grocery and the drug stores with $150 million worth of products with high profit margins.

SHAREHOLDER: Now, why don't you appeal to the Labor Law Enforcement and the Attorney General to enforce the Labor Laws of the State of California?

CHAIRMAN TINCHER: Well, I don't know quite what you are getting at, sir. We all know that every piece of legislation on farm activities that has been introduced in this legislature—both houses are controlled by one party—we know that every piece of legislation that has been proposed has been defeated, including the latest day before yesterday.

SHAREHOLDER: The California State Labor Code applies to these contracts as well as to other contracts. I think a big corporation like Purex could lead the way to provide freedom for these farm workers.

CHAIRMAN TINCHER: I can only assure you life is seldom black or white. Life is seldom as simple as you are making it sound. From a legal point of view, we have extremely good legal counsel. We have exhausted all possibilities and so far, as a result, nothing has been able to have been accomplished.

If you figure that we have been remiss somehow, that this is a very simple legal matter, and that these contracts can be declared illegal, we would certainly enlist your support and ask you to accomplish this for us. We, our attorneys, and the attorneys of others who have been involved, have not been able to see it as a simple matter.

Agricultural Products

The establishment of the Purex Agricultural Group by the acquisition of Valley Packing Company of Salinas, California and Brock Ranches, Inc. of El Centro, California in 1968 gave a new dimension to Purex's consumer products operations.

Following the management decision that diversification into agriculture would be a profitable step, a number of small, well-managed agricultural operations were acquired in 1968 and 1969. Purex's philosophy in developing its agricultural operation has been to establish a widely diversified crop program, endeavoring to balance it out to consumer needs and production schedules.

As a result of the rapid but careful expansion of the past two years, the Purex Agricultural Group is operating profitably in the agricultural areas it originally planned. It has acquired good management and small shares of most of the crops it desired, and it now plans to consolidate its position and improve its operating techniques and efficiency.

On June 30, 1970 Purex received notice of a proposed complaint by the Federal Trade Commission challenging its acquisition of a number of relatively small fresh-produce companies on the ground that the action may lessen competition in the fresh produce market. Purex feels the charge is not meritorious since its agricultural acquisitions amount to only a minute fraction of the produce business and therefore cannot logically be considered as reducing competition. As of this date, Purex has not yet received a formal complaint from the FTC and is working with the FTC to dispose of the matter by a consent settlement without litigation.

In the field of labor relations, Purex recognizes that unions in agricultural production will be a permanent reality and believes that farm workers have as much right to representation as any others. Many of our agricultural employees are presently unionized and an effort is now being made in the Salinas Valley to determine which of two unions should represent the field workers. The company believes that responsible union influence is a good thing, but it favors legislation to eliminate boycotts and harvest time strikes, which are unfair to both consumers and farm owners.

Despite the proposed FTC complaint and the current uncertainties of agricultural labor relations, Purex management believes strongly that its entry into the production and marketing of agricultural consumer products was a wise move which should prove increasingly profitable through the years. It is confident that the company's agricultural operations will continue to contribute substantially to profitable growth.

SAFEWAY STORES INC.

201 Fourth Street, Oakland, California 94604

Financial Profile

Market Value:	(124)	$ 866,932,000
Revenues:	(14)	$4,860,167,000
Assets:	(315)	$ 875,705,000
Net Profit:	(100)	$ 68,892,000

Chief Executive: Quentin Reynolds
Total Remuneration: $155,000
Value of Shares Owned/Controlled By: $386,000

Physical Profile

Subsidiaries:

- Canada Safeway Ltd. (100%) and its subsidiaries.
  - Australian Safeway Ltd. (90%)*
    - Australian Safeway Stores, Pty. Ltd. (100%)
  - Jasper Dairy Co. Ltd. (100%)
  - Macdonalds Consolidated Ltd. (90%)*
    - Clearbrook Frozen Foods Ltd. (100%)
  - Safeway Food Stores Ltd. (90%) *
  - "Safeway" Supermarket Gmblt (West Germany) (90%)*
  - Wingate Equipment Lessors Ltd. (100%)
  - Canada Safeway International Finance Corp. (100%)*

(NOTE: % in parenthesis indicates voting power of Safeway Stores Inc.)

No. of employees: 78,000

Company properties - see following page

A 90-page study of Safeway Stores Inc. corporate profile is available through the Agribusiness Accountability Project, 1000 Wisconsin Avenue, N.W., Washington, D.C. 20007.

Interconnecting Directorates

Castle & Cooke Inc.; Amfac Inc.; Wells Fargo Bank. (2); Hewlett Packard Co.; Owens-Illinois Inc.; J.G. Boswell Co. (2); Bank of California, N.A.(2); Pacific Gas & Electric Co.; Shell Oil Co.; Frank B. Hall, Inc.; Utah Construction and Mining Co.; Security Pacific National Bank; Ridder Publications; Bath Industries; Caterpillar Tractor Co. Southern Pacific Co.; Fibreboard Corp.; Cutter Laboratories; Merrill Lynch, Pierce, Fenner & Smith (2), among others.

Safeway Stores Inc. operates 2303 stores in the United States (1963), Canada (263), Australia (27), United Kingdom (40), and West Germany (10), and employs 96,760 people.

In the United States the company operates:

23	distribution centers
12	bread baking plants
1	cake baking plant
1	cereal processing plant
2	cookie & cracker baking plants
3	coffee roasting plants
1	dressing & salad oil plant (Richmond, Calif.)
1	edible oil refinery & finished products plant (Denison, Texas)
1	fruit processing, margarine & dressing plant (Grandview, Washington)
1	household chemicals plant
1	jelly & preserves plant (San Leandro, Calif.)
1	soap plant (Oakland, Calif.)
14	ice cream plants
1	instant milk plant
15	milk plants
3	egg candling plants
3	meat processing plants
19	produce prepackaging plants
5	soft drink bottling plants
2	cheese pre-cutting plants

In Canada, through its subsidiary, Safeway Stores, Inc. operates:

3	bread baking plants
1	coffee roasting plant
4	fruit & vegetable canning plants
2	frozen fruit & vegetable processing plants
1	jam and jelly plant
3	ice cream plants
3	milk plants
3	egg candling plants
1	cheese pre-cutting plant

SEARS ROEBUCK AND COMPANY

303 East Ohio Street, Chicago, Illinois 60611

Financial Profile

Market Value:	(6)	$11,779,329,000
Revenues:	(5)	$ 9,262,162,000
Assets:	(25)	$ 7,623,096,000
Net Profit:	(9)	$ 464,201,000

Chief Executive: G.M. Metcalf
Total Remuneration: $375,000
Value of Shares Owned/Controlled By: $3,263,000

Physical Profile

No. of employees: 359,000

Stores:		
	Complete Department	255
	Medium Size	381
	Hard Line	191
	Catalog Order Plants	11
	Catalog Retail and Telephone Sales	2310
	Major Distribution Warehouses	69
	Service and Parts Centers	115

Subsidiaries:
- Homart Development
- AllState Enterprises Inc.
- AllState Savings and Loan Association
- AllState Insurance Co.

Interconnecting Directorates

Bank of America N.T. & S.A.; Crocker National Corp.; Commonwealth Edison Co.; Kraftco Corp.; Manufacturers Hanover Corp.; First National City Bank of New York (3); Quaker Oats Co.; Conill Corp. (2); American Telephone and Telegraph Co.; International Harvester Co.; United Air Lines; Royal Street Corp., among others.

SECURITY PACIFIC NATIONAL BANK

Post Office Box 2097, Terminal Annex, Los Angeles, California 90054

Financial Profile

Market Value:	(220)	$ 610,805,000
Revenues:	(329)	$ 505,802,000
Assets:	(20)	$8,038,070,000
Net Profit:	(145)	$ 54,765,000

Chief Executive: F.G. Larkin Jr.
Total Remuneration: $180,000
Value of Shares Owned/Controlled By: $73,000

Shareholders: 24,182   17,026,275 average shares outstanding

Physical Profile

No. of California locations: 415
No. of employees: 15,000

The Bank received a $39,276 ASCS subsidy in 1970.

Interconnecting Directorates

J.G. Boswell Co.; Safeway Stores Inc.; Carnation Co.; Pacific Mutual Life Insurance Co.; Getty Oil Co.; Litton Industries Inc.; Pacific Telephone and Telegraph Co. (2); Ducommun Inc.; Times Mirror Co.; Santa Fe Industries; North American Rockwell Corp.; United Press International; Beckman Instruments Inc.; Brody Investment Co.; American Airlines; Kerr-McGee Corp.; Robert Dollar Co.; Essick Investment Co.; Lear-Siegler Inc.; California Portland Cement Co.; Southern Pacific Co.; George D. Hart Inc.; Farquhar & Heimbucher; Teledyne Ryan Aeronautical Co.; Superior Oil Co.; Lockheed Aircraft Corp.; Union Pacific Corp.; The Lurie Co.; Judsen Steel Corp.; Homestake Mining Co.; Purity Stores Inc.; O'Melveny & Myers (law); Cyrus Mines Corp.; Sunkist Growers; Lloyd Corp. Ltd.; Southern California Edison Co.(3); Newhall Land & Farming Co., among others.

SOUTHERN CALIFORNIA EDISON COMPANY

P.O. Box 351, Los Angeles, California 90053

Financial Profile

Market Value:	(73)	$1,300,516,000
Revenues:	(240)	$ 720,661,000
Assets:	(62)	$3,226,881,000
Net Profit:	(39)	$ 127,495,000

Chief Executive: J.K. Horton
Total Remuneration: $150,000
Value of Shares Owned/Controlled By: $78,000 (common stock)

Agricultural Revenues:	$18,871,000	+22.1% from 1969
Agricultural KWH Sales	1,151,937	+25.5% from 1969

- largest single item on the Company ledge

Physical Profile

Number of customers: 2,438,584
Number of employees: 12,000

Interconnecting Directorates

Bankamerica Corp.; Bank of America N.T. & S.A.; Pacific Mutual Life Insurance Co. (5); Western Bancorporation (3); Broadway-Hale Stores Inc. (3); Beckman Instruments Inc.; Security Pacific National Bank (3); American Telephone and Telegraph Co.; Del Monte Corp.; California Cotton Oil Corp.; Pacific Telephone and Telegraph Co.; Lockheed Aircraft Corp.; Carnation Co.; Getty Oil Co.; Gerald H. Phillips Inc. (general contractor); Lloyd Corp. Ltd.; Buffums' (department store); Amfac, Inc., among others.

SOUTHERN PACIFIC COMPANY

65 Market Street, San Francisco, California 94105

Financial Profile

Market Value:	(109)	$ 985,890,000
Revenues:	(117)	$1,272,289,000
Assets:	(66)	$3,066,260,000
Net Profit:	(56)	$ 106,766,000

Chief Executive: B.F. Biaggini
Total Remuneration: $190,000
Value of Shares Owned/Controlled By: $105,000

Freight Revenues:	Farm products	$119,341,000	+4.9%
	Food & kindred products	$148,706,000	+4.6%
	Chemicals and allied products	$106,876,000	+6.4%

Physical Profile

Own 3,845,969 acres of land - see map on following pages
Operate 21,206.52 miles of track
Possess mineral and royalty interests on another 1,334,741 acres

Southern Pacific Land Co. (a subsidiary - see following pages) has about 173,000 acres of land in agriculture, principally in California.

Number of employees: 41,000

Companies and subsidiaries - see following pages

The Company has 50% ownership (with Union Pacific) in Pacific Fruit Express which operates over 2600 cars at a cost of $83,000,000.

In 1970 the Company located 529 new industries along their lines. They expect a similar growth rate in 1971.

ASCS Subsidy Payments and leased farm land --- see following pages

The Southern Pacific Development Co. (a subsidiary) has approximately $23 million and $2 million in cash.

Interconnecting Directorates:

Safeway Stores Inc.; J.G. Boswell Co.; Bank of California, N.A.; Fibreboard Corp.; Merrill Lynch, Pierce, Fenner and Smith; Caterpillar Tractor Co. (2) Bechtel Corp.; General Motors; Crocker National Bank; Cyrus Mines Corp.; Western Bancorporation (2); Pacific Mutual Life Insurance Co.; Lehman Bros. (investment bankers); IBM Corp.; FMC Corp.; California Portland Cement Co.; Security Pacific National Bank; Chemical New York Corp.; Harris, Upham & Co.; Pacific Gas & Electric Co.; (continued on following

Interconnecting Directorates (cont'd)

New York Life Insurance Co.; International Telephone and Telegraph Co.; Willamette Industries; Newhall Land & Farming Co.; Del Monte Properties Inc.; Tenneco, Inc.; Association of American Railroads, among others.

Leased land in 1969:

Fresno County, California

Giffen, Inc.	31,303.11 acres	Net Profit & Income $325,607.
*Vista Del Llana	7,180.51 acres	Net Profit & Income $ 84,851.
Jack Harris Inc.	2,951.26 acres	Net Profit & Income $ 84,446.

Kern County, California

Producers Cotton Oil Co.	4,448.85 acres	Net Profit & Income $109,881.

Leased land in 1970

Fresno County, California

Giffen, Inc.	21,312.94 acres	Net Profit	- $422,231
Jack Harris Inc.	2,951.26 acres	" "	- $108,505
H.C. Reece	2,651.84 acres	" "	- $ 74,555
*Vista Del Llama	7,180.19 acres	" "	- No report

* = Owned by Anderson Clayton & Co.

ASCS Subsidy Payments to Company

1966	S.P. Land Company	$ 31,016
1967	S.P. Land Company	$ 50,400
1968	S.P. Land Company	$ 54,917
1969	S.P. Company	$161,068
1970	S.P. Land Company	$ 71,757
	S.P. Transportation Co.	$ 72,404
		$441,562

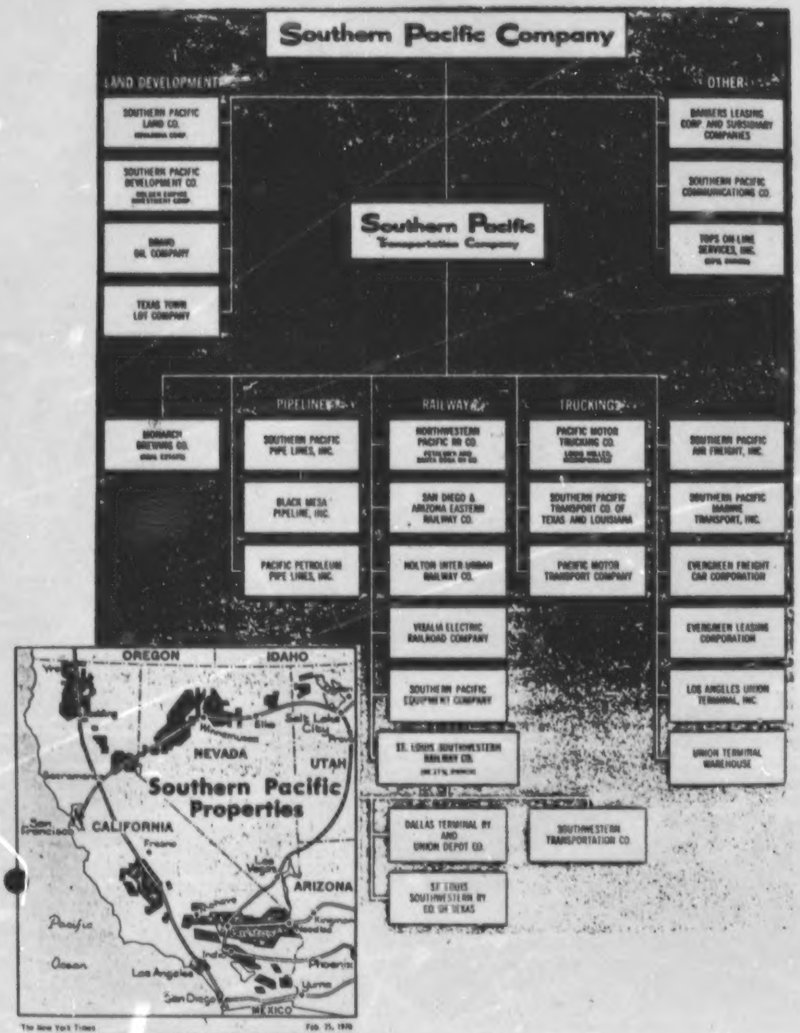
Southern Pacific Co. owns 78,923 acres which is "eligible" for federally subsidized water in the Westlands Water District.

As of July 30,1970 none of this acreage was under recordable contract vis-a-vis the provisions of the 160-acre reclamation laws.

Southern Pacific Land Co. owns 30,056 acres which is "eligible" for federally subsidized water in the Westlands Water District.

As of July 30,1970 none of this acreage was under recordable contract vis-a-vis the provisions of the 160-acre reclamation laws.

Company contributed $7000 to California Governor Ronald Reagan's 1970 primary campaign.


Southern Pacific Company
LAND DEVELOPMENT
SOUTHERN PACIFIC LAND CO.
SOUTHERN PACIFIC DEVELOPMENT CO.
BRAND OIL COMPANY
TEXAS TOWN LOT COMPANY
OTHER
BANKERS LEASING CORP. AND SUBSIDIARY COMPANIES
SOUTHERN PACIFIC COMMUNICATIONS CO.
TOPS ON-LINE SERVICES, INC.
Southern Pacific Transportation Company
MONARCH BREWING CO.
PIPELINES
SOUTHERN PACIFIC PIPE LINES, INC.
BLACK MESA PIPELINE, INC.
PACIFIC PETROLEUM PIPE LINES, INC.
RAILWAY
NORTHWESTERN PACIFIC RR CO.
SAN DIEGO & ARIZONA EASTERN RAILWAY CO.
HOLTON INTER-URBAN RAILWAY CO.
VISALIA ELECTRIC RAILROAD COMPANY
SOUTHERN PACIFIC EQUIPMENT COMPANY
ST. LOUIS SOUTHWESTERN RAILWAY CO.
DALLAS TERMINAL RY AND UNION DEPOT CO.
ST LOUIS SOUTHWESTERN RY CO OF TEXAS
TRUCKING
PACIFIC MOTOR TRUCKING CO.
SOUTHERN PACIFIC TRANSPORT CO. OF TEXAS AND LOUISIANA
PACIFIC MOTOR TRANSPORT COMPANY
SOUTHWESTERN TRANSPORTATION CO
SOUTHERN PACIFIC AIR FREIGHT, INC.
SOUTHERN PACIFIC MARINE TRANSPORT, INC.
EVERGREEN FREIGHT CAR CORPORATION
EVERGREEN LEASING CORPORATION
LOS ANGELES UNION TERMINAL, INC.
UNION TERMINAL WAREHOUSE
OREGON
IDAHO
Elko
Winnemucca
Salt Lake City
Provo
NEVADA
UTAH
Southern Pacific Properties
Sacramento
San Francisco
CALIFORNIA
Fresno
Las Vegas
ARIZONA
Mojave
Needles
Pacific Ocean
Los Angeles
Indio
Phoenix
Yuma
San Diego
MEXICO

The New York Times Feb. 25, 1970

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STANDARD OIL COMPANY OF CALIFORNIA

P.O. Box 3495, San Francisco, California 94120

Financial Profile

Market Value:	(18)	$4,623,617,000
Revenues:	(17)	$4,187,762,000
Assets:	(27)	$6,593,551,000
Net Profit:	(10)	$ 454,817,000

Chief Executive Officer:	O.N. Miller
Total Remuneration:	$250,000
Value of Shares Owned/Controlled By:	$682,200

Physical Profile

No. of employees: 45,000

Principal subsidiaries and affiliates - see following page

Land Development

Chevron Land and Development Company, a subsidiary, expanded programs for development of Standard's Western U.S. landholdings.

In early 1971, Standard granted an independent development group an option on 110 acres of land in Richmond, California, for a major regional shopping center. The developers plan a multimillion-dollar center with national department stores, plus 125 mall stores. Sizable adjacent acreage, held by Chevron Land, will be appropriately developed.

Construction was started at El Segundo, California, on the first high-rise office building and site improvements in the new International Center, a planned commercial community with more than $250 million in possible future projects. Chevron Land holds a half interest in the venture, located near the Los Angeles International Airport. Standard owns sizable additional acreage immediately adjacent to the development.

Chevron Land is actively engaged in the development of other major landholdings throughout California.

Standard Oil of California owns 306,000 acres of land in California, most of it in agriculture.

Operation Notes

ASCS Subsidy Payments:

1970	$132,139
1969	$121,254
1968	$ 36,230
1967	$ 39,395
1966	$ 27,298
	$356,316

Interconnecting Directorates

Pacific Telephone & Telegraph Co.; Bank of America NT & SA; (2); Bankamerica Corp. (2); Prudential Insurance Co.; Stanford Research Institute (2); Broadway-Hale Stores, In (2); American Potato Co.; Di-Giorgio Corp.; Time Inc.; Kaiser Industries; Consolidated Foods; I T & T; Boeing Co.; Western Bancorporation (2); Crocker National Corp.; Pacific Mutual Life Insurance Co.; Joshua Hendry International Corp. (steamship operators), among others.

FIGURES IN PARENTHESES ARE PERCENTAGE OF COMPANY INTEREST	PRINCIPAL BUSINESS	PRINCIPAL AREAS OF OPERATION
United States		
STANDARD OIL COMPANY OF CALIFORNIA	Exploration, Producing Transportation, Refining and Marketing	California, Washington, Oregon, Arizona, Nevada, Northern Idaho, Alaska and Hawaii
STANDARD OIL COMPANY OF CALIFORNIA, WESTERN OPERATIONS, INC. (100)	Management	
STANDARD STATIONS, INC. (100)	Service Station Operation	
CHANDELEUR PIPE LINE COMPANY (100)	Gas Transportation	Louisiana and Mississippi
CHEVRON ASPHALT COMPANY (100)	Refining and Marketing Asphalts and Asphalt Emulsions	United States and Puerto Rico
CHEVRON CHEMICAL COMPANY (100)	Agricultural and Industrial Chemicals	United States and Foreign
CHEVRON COMMERCIAL COMPANY, INC. (100)	Service Company	New York and Washington, D.C.
CHEVRON INTERNATIONAL OIL COMPANY, INC. (100)	Marketing	United States and Foreign
CHEVRON LAND AND DEVELOPMENT COMPANY (100)	Land Planning and Development	California and Washington
CHEVRON OIL COMPANY (100)		
EASTERN DIVISION	Refining and Marketing	Eastern States
GEOPHYSICAL DIVISION	Geophysical Surveys	United States and Canada
SOUTHERN DIVISION	Marketing	Indiana, Louisiana, South Carolina and Tennessee
THE CALIFORNIA COMPANY	Exploration and Producing	Central, Eastern and Southeastern States, Southern and Eastern Texas
WESTERN DIVISION	Exploration and Producing	Rocky Mountain and Plains States, Northern and Western Texas
	Refining and Marketing	Rocky Mountain and Plains States, Texas and New Mexico
CHEVRON OIL FIELD RESEARCH COMPANY (100)	Oil Field Research and Development	California
CHEVRON PIPE LINE COMPANY (100)	Oil Transportation	Colorado, Idaho, Louisiana, Mississippi, New Mexico, Oregon, Texas, Utah and Washington
CHEVRON RESEARCH COMPANY (100)	Research and Development	California
CHEVRON SHALE OIL COMPANY (100)	Shale Lands	Colorado
CHEVRON SHIPPING COMPANY (100)	Marine Transportation Management	United States and Foreign
CHEVRON STATIONS, INC. (100)	Service Station Financing	United States
STANDARD OIL COMPANY (KENTUCKY) (100)	Refining and Marketing	Alabama, Florida, Georgia, Kentucky and Mississippi
STANDARD PIPE LINE COMPANY (100)	Oil Transportation	California
HUNTINGTON BEACH COMPANY (63.64)	Owns Oil Royalties and Land	California
AMERICAN GILSONITE COMPANY (50)	Producing and Refining Gilsonite	Utah and Colorado
[illegible] PIPE LINE COMPANY (50)	Oil Transportation	Alaska
[illegible]TATION PIPE LINE COMPANY (27.13)	Oil Transportation	Southeastern States
Canada		
CHEVRON ASPHALT LIMITED (100)	Asphalt Emulsions	Canada
CHEVRON CHEMICAL (CANADA) LIMITED (100)	Agricultural and Industrial Chemicals	Canada
CHEVRON STANDARD LIMITED (100)	Exploration and Producing	Western Canada
STANDARD OIL COMPANY OF BRITISH COLUMBIA LIMITED (100)	Exploration, Producing, Refining and Marketing	Western Canada
IRVING OIL COMPANY, LIMITED*	Marketing	Eastern Canada
IRVING REFINING LIMITED*	Refining	Eastern Canada
Mexico, Central and South America, Caribbean Area		
ASFALTOS CHEVRON S.A. (99.99)	Asphalt Products	Brazil
CHEVRON CHEMICAL PAN AMERICAN COMPANY (100)	Industrial Chemicals	Mexico, Central and South America
CHEVRON OIL BAHAMAS LIMITED (100)	Owns 35% Interest in Bahamas Refinery	Bahama Islands
CHEVRON OIL COMPANY OF VENEZUELA (100)	Exploration, Producing and Refining	Venezuela
CHEVRON OIL LATIN AMERICA, INC. (100)	Refining and Marketing Management	Central America, Puerto Rico and Peru
CHEVRON PETROLEUM COMPANY OF COLOMBIA (100)	Exploration, Producing and Oil Transportation	Colombia
Middle East		
ARABIAN AMERICAN OIL COMPANY (30)	Exploration, Producing and Refining	Saudi Arabia
IRAN CALIFORNIA OIL COMPANY (100)	Owns 7% Interest in Iranian Oil Operations	Iran
Other Foreign Areas		
AMERICAN OVERSEAS PETROLEUM LIMITED (50)	Exploration and Producing Management	Libya and Indonesia
CALIFORNIA ASIATIC OIL COMPANY (100)	Exploration and Marketing Producing	Eastern Hemisphere Libya, Nigeria, Spain and Western Australia
CALIFORNIA OIL (U.K.) LIMITED (100)	Exploration	North Sea Area
CALTEX MEDITERRANEAN COMPANIES (50)	Refining and Marketing	France, Spain and Turkey
P.T. CALTEX PACIFIC INDONESIA (50)	Exploration and Producing	Indonesia
CALTEX PETROLEUM COMPANIES (50)	Exploration and Producing Refining and Marketing	Bahrain Island Eastern Hemisphere except Western Europe and portions of West Africa
CHEVRON CHEMICAL COMPANY S.A.F. (99.95)	Agricultural Chemicals	Eastern Hemisphere
CHEVRON CHEMICAL INTERNATIONAL, INC. (100)	Industrial Chemicals	Foreign
CHEVRON FINANCE N.V. (100)	Foreign Financing and Investments	Foreign
CHEVRON OIL EUROPE, INC. AND SUBSIDIARIES (100)	Refining and Marketing	Belgium, Denmark, Italy, Luxembourg, Switzerland, The Netherlands, United Kingdom and West Germany
CHEVRON OIL SALES COMPANY (100)	Marketing	Foreign
CHEVRON OIL TRADING COMPANY (100)	Marketing	Foreign
CHEVRON OVERSEAS FINANCE COMPANY (100)	Foreign Financing and Investments	Foreign
CHEVRON OVERSEAS PETROLEUM INC. (100)	Exploration and Producing Management	Foreign
CHEVRON TANKERS (NEDERLAND) N.V. (100)	Marine Transportation	Worldwide
CHEVRON TANKSHIP (U.K.) LIMITED (100)	Marine Transportation	Worldwide
CHEVRON TRANSPORT CORPORATION (100)	Marine Transportation	Worldwide
INTERNATIONAL BITUMEN EMULSIONS CORPORATION (100)	Asphalt Emulsions	North and South America and Pacific Area
OVERSEAS TANKSHIP CORPORATION (100)	Marine Transportation	Worldwide

*Companies owned jointly with the Irving interests

STOKELY-VAN CAMP, INC.

941 North Meridian Street, Indianapolis, Indiana 46206

Financial Profile

Market Value: $102,845,000
Revenues: $274,640,000
Assets: $168,542,000
Net Profits: $ 4,302,000

Chief Executive: Alfred J. Stokely
Total Remuneration $84,502
No. of Shares Owned/Controlled By: 20,000

Physical Profile

No. of employees: 7000

Canned Foods Division—Processor and distributor of the *Van Camp's* quality line of non-seasonal canned foods including the number one selling Pork and Bean, a full line of canned seasonal fruits and vegetables sold under the *Stokely's Finest* label and drinks including Gatorade the original thirst quencher.

General office: 941 North Meridian Street, Indianapolis, Indiana

Operations:
CALIFORNIA/Lodi, Los Angeles, Oakland*
Oroville, Oxnard, Santa Cruz
IDAHO/Emmett
ILLINOIS/Gibson City, Hoopeston, Rochelle
INDIANA/Indianapolis,* Peru, Tipton*
KANSAS/Lawrence*
MICHIGAN/Caro, Croswell, Hart, Scottville
MINNESOTA/Fairmont, Lakeland
NEW JERSEY/Trenton*
OHIO/Celina, Curtice,* Norwalk, Paulding
TENNESSEE/Newport,* Tellico Plains
TEXAS/Dallas*
WISCONSIN/Appleton, Columbus, Cumberland,
Frederic, Holmen, Horicon, Plymouth

*Non-seasonal operations conducted in canning plants at these locations.

Frozen Foods Division—Processor and distributor of frozen vegetables, fruits and other products which are distributed under the *Stokely's Finest* and *Pictsweet* labels.

General office: 970 North Meridian Street, Indianapolis, Indiana

Operations:
CALIFORNIA/Oxnard, San Jose
FLORIDA/Haines City
INDIANA/Indianapolis
MINNESOTA/Fairmont, Winnebago
OREGON/Albany
WASHINGTON/Auburn, Kent, Mount Vernon,
Stanwood, Zillah

(continued on the following page)

Interconnecting Directorates

Merchants National Bank & Trust; Indiana Canners Association; Rockford Can Co.; L.S. Ayres & Co.(2); Ball Corp.; American National Bank & Trust; Calvert Exploration Co.; American Fletcher Bank (Indiana); Indiana Bell Telephone Co.; Indiana Power and Light Co.; American United Life Insurance Co.; K-B Farms, Inc., among others.

Capital City Products Division—Processor of food oils to produce highly specialized products which are utilized by other processors as ingredients.

General office and operations: 525 West First Avenue, Columbus, Ohio

Pomona Products Division—Distributes and processes, primarily under the popular *Sunshine label*, a line of southern vegetables. The major marketer of Pimientos in the U.S.

General office and operations: Griffin, Georgia

Kuner Empson Company Division—Distributes in the Rocky Mountain and Plains Areas a line of canned fruits and vegetables under the *Kuners* label.

General office and operations: Brighton, Colorado

Purity Mills Division—Processor of unpopped popcorn sold primarily under the *Popeye* and *Betty Zane* labels and puffed wheat and rice with the *Popeye* label.

General office: Dixon, Illinois

Operations:
Illinois/Dixon
Indiana/Clarks Hill
Ohio/Marion

Can Manufacturing Division—Manufacturer of cans from tin plate supplied to other divisions for use in canning operations.

General office: 941 North Meridian Street, Indianapolis, Indiana

Operations:
California/Lodi
Indiana/Indianapolis
Tennessee/Newport
Illinois/Rockford

SUBSIDIARIES

M. W. GRAVES & COMPANY, LTD. and CANADA FOODS, LTD., Berwick, Nova Scotia, Canada
Distributors and processors of canned and frozen vegetables and fruits sold in Maritime Provinces of Canada under their own labels.

HAWAIIAN FRUIT PACKERS, LTD., Kapaa, Kauai, Hawaii
Packer of pineapple products for sale by and use of the parent company.

STOKELY-VAN CAMP OF CANADA, LTD., Essex, Ontario, Canada
Processor and distributor of canned vegetables distributed in Prairie Provinces of Canada under its own label.

STOKELY-VAN CAMP OF PUERTO RICO, Manati, Puerto Rico
Sales Corporation.

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SUNKIST GROWERS INC.

Financial Profile

Sales: $314,000,000 ($252,000,000 came from the sale of fresh fruit alone)

Chief Executive Officer: Roy Utke
Total Remuneration: Not available

Physical Profile

A non-profit cooperative which serves 8500 citrus growers in California and Arizona and markets over 70% of fresh citrus shipments from the two states.

114 packing houses are organized into twenty regional exchanges which in turn elect Sunkist's 32-man Board of Directors

Among the members of Sunkist are:

- Berylwood Investment Co. (Kaiser Aluminum and Chemical Co.)
- Blue Goose Growers Inc. (Pacific Lighting Corp.)
- Giffen Ranch (Russel Giffen)
- The Irvine Company (Irvine Foundation)
- Newhall Land and Farming Co.
- Rancho Sespe (California Institute of Technology)
- S.A. Camp Ginning Co.

Interconnecting Directorates

Security Pacific National Bank, Newhall Land and Farming Co., Castle and Cooke, Inc. Valencia Water Co., Fillmon-Piru Citrus Association, Ventura County Citrus Association, Las Pasas Orchard, among others.

TEJON RANCH

Financial Profile

Market Value:	$11,006,678
Revenues:	$ 3,654,818
Assets:	$ 7,302,686
Net Profit:	$ 1,263,663

Chief Executive Officer:	Howard H. Leach
Total Remuneration:	Not Available
No. of Shares Owned/Controlled By:	None

Physical Profile

Map, divisional income, farm crop acreage, and year end cattle inventory - see following pages

Owns 290,000 acres of land

Recently sold 197 acres of table grapes for $172,653.

Also sold 2225 acres of irrigated farm land in Arvin-Edison Water Storage District for $518,866 (all but 80 acres of which were subject to the Federal 160-acre limitation act).

Operation Notes

ASCS Subsidy Payments

1970	$180,046
1969	$133,501
1968	$104,255
1967	$115,802
1966	$121,096
	$654,700

Stockholders: 1700
Common stock outstanding: 1,248,844 shares (March 1,1971)
Times-Mirror Co. owns 150,848 shares (12.8%)
Chandis Securities Co. (wholly-owned by the Times-Mirror Chandler family) owns 63,425 shares (5.8%)

Interconnecting Directorates

Times Mirror Co. (2); Maquinaria y Camiones (Mexican farm equipment); Gibson, Dunn & Crutcher; Signal Companies; W.M. Garland Co. (real estate broker); M.H. Sherman Co.; Ardell Investment Co.; Prudential Insurance Company of America (Sr. VP); Weisman & Dreisen (law); Western Pacific Railroad Co., among others.

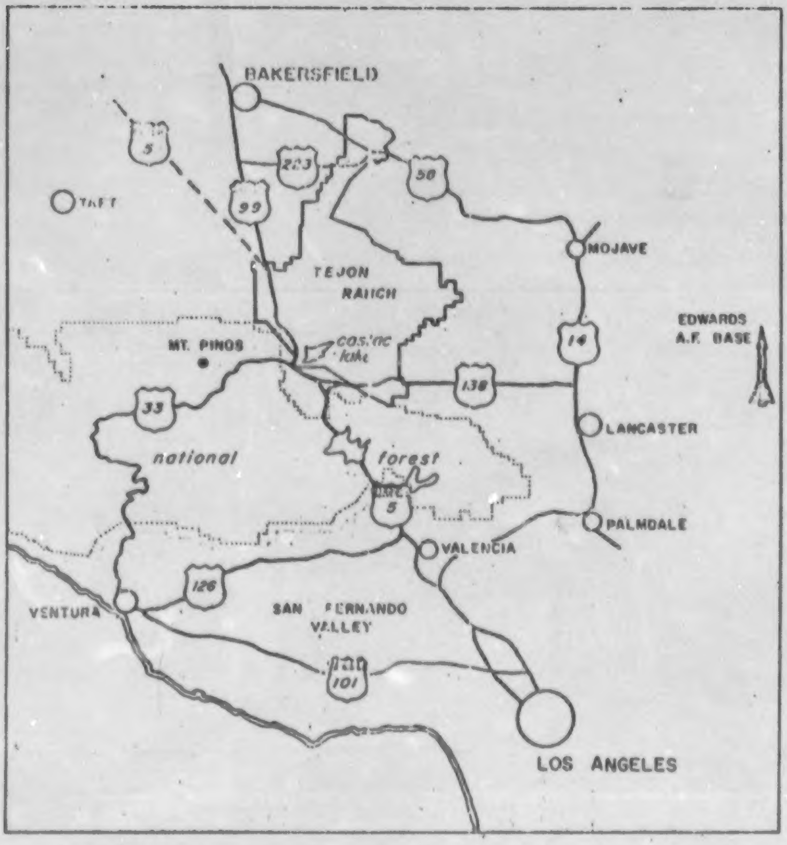
	1970		1969	
	Income	Per Cent of Income	Income	Per Cent of Income
Oil and Gas Income	$ 376,620	10.3%	$ 433,576	14.0%
Other Mineral Income	207,568	5.7	178,135	5.7
Livestock Income	1,269,128	34.7	958,445	30.9
Range Rent	88,685	2.4	87,580	2.8
Farming Rents & Revenues	1,120,733	30.7	872,371	28.1
Commercial Income	112,906	3.1	119,442	3.9
Interest Income	377,436	10.3	228,792	7.4
Water Sales	25,880	0.7	89,851	2.9
Other Income	75,862	2.1	133,801	4.3
	$3,654,818	100.0%	$3,101,993	100.0%
Operating & Administrative Expense	2,843,778		2,302,809	
Operating Income	$ 811,040		$ 799,184	
Taxes on Income	309,909		296,938	
	$ 501,131		$ 502,246	
Extraordinary Items	762,532		182,900	
Net Income	$1,263,663		$ 685,146	

FARM CROP ACREAGE

Irrigated Acres	1970	1969	1968	1967	1966
Cotton	4,406	4,293	4,078	3,523	3,587
Potatoes	3,759	3,899	3,904	4,334	4,529
Alfalfa	225	928	1,189	1,434	1,481
Grain and Miscl. Vegetables	7,061	7,309	8,246	7,152	5,365
Vineyard	372	372	375	352	360
Oranges	501	501	373	373	373
Fallow	3,517	4,002	2,981	2,267	2,666
	19,841	21,304	21,146	19,435	18,361
Non-Irrigated Acres					
Wheat	2,270	2,080	3,002	3,436	2,806
Barley	1,981	1,194	951	761	1,529
Fallow	4,873	4,108	3,985	3,741	3,795
	9,124	7,382	7,938	7,938	8,130
TOTAL ACREAGE	28,965	28,686	29,084	27,373	26,491

YEAR END CATTLE INVENTORY

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Tejon Breeding Herd	5,877	7,056	7,633	7,897	8,169	8,956	9,034	9,276	9,798	9,411
Purchased Stockers	398	668	958	1,641	2,565	2,131	2,279	3,436	4,981	5,185
Total Head	6,275	7,724	8,591	9,538	10,734	11,087	11,313	12,712	14,779	14,596


BAKERSFIELD
5
TAFT
223
99
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MOJAVE
TEJON
RANCH
EDWARDS
A.F. BASE
MT. PINOS
castaic
lake
14
138
33
LANCASTER
national
forest
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PALMDALE
VALENCIA
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VENTURA
SAN FERNANDO
VALLEY
101
LOS ANGELES

INDEX MAP

The strategic location of the Tejon Ranch is apparent from the map shown above. With excellent access provided by Federal and State highways, the Ranch is in close proximity to Southern California growth areas. Interstate Route 5 will establish a divided 8-lane freeway to Los Angeles and other Southland communities, and, when finished to the north, will afford the most direct route to the San Francisco Bay Region. When completed, recreational facilities of two major Feather River Project Reservoirs (Pyramid and Castaic) will be within easy driving range of the Ranch, as well as the planned intercontinental jet airport near Palmdale. Since the vast acreage located within the Los Padres National Forest is unavailable for private development, the Tejon Ranch lands are among the closest to Los Angeles that are still undeveloped.

- 1970 Annual Report

TENNECO INC.

P.O. Box 2511, Houston, Texas 77001

Financial Profile

Market Value:	(58)	$1,546,312,000
Revenues:	(43)	$2,524,740,000
Assets:	(46)	$4,343,793,000
Net Profit:	(27)	$ 157,809,000

Chief Executive: N.W. Freeman
Total Remuneration: $178,000
Value of Shares Owned/Controlled By: $1,358,000

Physical Profile

No. of employees: 60,000

Subsidiaries - see following page

Tenneco West, Inc. as of December 30, 1970

	Land Owned	Land Leased	Total
California	362,540	33,698	396,238
Arizona	604,462	486,575	1,091,037
			1,487,275

128,954 net acres are devoted to irrigated farm lands - 42,020 farmed by Tenneco while the rest is leased
Recently sold 30,000 acres to Roberts Farms Inc. for $15,000,000 - see clipping on following page and Page

ASCS Subsidy Payments:

H.M. Tenneco 1970	$1,317,051
Kern Co. Land 1969	$ 974,163
Kern Co. Land 1968	$ 669,741
Kern Co. Land 1967	$ 838,130
Kern Co. Land 1966	$ 652,057

Interconnecting Directorates

Cameron Iron Works Inc.; Southern Pacific Co.; Association of American Railroads; Harris Upham & Co. Inc.; Baker and Botts (law); First National Bank of Chicago, and numerous Tenneco Inc. subsidiaries among others.

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SUBSIDIARIES
(100% owned except as noted)
TENNESSEE GAS TRANSMISSION CO.
Channel Industries Gas Co.
East Tennessee Natural Gas Co.--[illegible]
Midwestern Gas Transmission Co.--[illegible]
Tennessee Gas Pipeline Co.
TENNECO CORP. ([illegible])
TENNECO OIL CO.
Domestic--
Blue Flame Gas Corp.
Calima Pipeline Co.
Direct Oil Corp.
Martin Drilling Co., Inc.
Mitchell Supreme Fuel Co.
Red Diamond Oil, Inc.--80%
Southwest Sprayer and Chemical Co.
Tenbarco Corp.
Tenneco Laurel Corp.
Tennessee Production Co.
Foreign--
Globe Petroleum Sales, Ltd.
Tenneco Angola, Inc.

KCL CORPORATION
Casa de los Cerritos, Inc.
KERN COUNTY LAND CO.
Boquillas Cattle Co.
Kernland Farming Co.
Stockdale Development Corp.
Victoria Land and Cattle Co.
HEGGBLADE-MARGULEAS CO.
California Almonds, Inc.
Heggblade-Marguleas Co. Texas
Kern County Canal and Water Co.
Mar-Vel Farms
[illegible]

Tenneco Australia, Inc.
Tenneco Dominican Republic, Inc.
Tenneco Ethiopia, Inc.
Tenneco Guatemala, Inc.
Tenneco Holland, Inc., Gebr. Broere N. V.
Tenneco Indonesia, Inc.
Tenneco Malagasy, Inc.
Tenneco Netherlands, Inc.
Tenneco Oil & Minerals, Ltd.
Tenneco Oil Co. of Argentina
Tenneco Oil Co. of Nigeria
Tenneco Saudi Arabia, Inc.
Tenneco South Africa, Inc.
Tenneco Thailand, Inc.
Tenneco Venezuela, Inc.
West Africa Corp.
TENNECO CHEMICALS, INC.
Domestic--
American Plastics Division
Cal/Ink Division
General Foam Division
Gonset Corp.
Heyden Division
Newport Division
Nixon-Baldwin Division
Nuodex Division
Petro-Tex Chemical Corp.--50%
Southeastern Aniline Co.
Tenneco Advanced Materials Division
Tenneco Colors Division
Tenneco Hydrocarbon Chemicals Division
Tenneco Plastics Division
Foreign--
Butler Chemicals Ltd.
Butler Matron, Ltd.
Caligen Foam Ltd.--50%
Cal/Ink Chemical Co., of Canada, Ltd.
Calink Chemicals (Japan) Ltd.
Crown General International, S. A.
Leim Chemie G.m.b.H.
N. V. Transicol
Newport Mexicana, S. A. de C. V.--49%
Nuodex (Australia) Pty. Ltd.--51%
Nuodex Canada, Ltd.--51%
Nuodex France S.A.R.L.--50%
Nuodex Italiana S.p.A.--33 1/3%
Nuodex Ltd.--50%
Resinera del Tigre, S. de R. L. de C. V.
S. A. Ferdinand Debler--[illegible]
South African Paper Chemicals Co.
(Pty.) Ltd.--50%
Tenneco Quimica de Mexico, S. A.
Venezolana de Resinas, C. A.--33 1/3%

Precooling Services, Inc.
Statewide Packing Co.
Tenneco Food Products Co.
TENNECO PROPERTIES INC.
TENNESSEE OVERSEAS CORP.
INVESTMENTS
Domestic--
[illegible] Ventures, Inc.--91%
Houston Natural Co.--[illegible]

PACKAGING CORPORATION OF AMERICA
Alco Cartage Co.
EPCO Inc.
Tampco, Inc.--51%
Tennessee River Pulp & Paper Co.
The Corinth & Counce Railroad Co.
Superior Box and Bag Co., Inc.
J. I. CASE CO.--91%
Domestic--
Case Power and Equipment Ltd.
Davis Manufacturing, Inc.
Drott Manufacturing Corp.
J. I. Case Credit Corp.
Foreign--
Compagnie des Tracteurs
J. I. Case (Australia) Pty., Ltd.
J. I. Case do Brasil
Comercio e Industria Ltda.
J. I. Case Company Ltd.
J. I. Case (Denmark) A/S
J. I. Case Deutschland GmbH.
J. I. Case (Hong Kong) Ltd.
J. I. Case (Japan) K. K.
J. I. Case (Murray Bridge) Pty., Ltd.
J. I. Case (Sweden) A/B
WALKER MFG. DIVISION
G&R Metal Industries, Ltd.
Motor-Condensator
Compagnie Schlem K. G. (Germany)
The Mechanex Corp.
Walker Manufacturing Co.
NEWPORT NEWS SHIPBUILDING AND DRY DOCK
CO.
Nuclear Service and Construction Co., Inc.

Desarrollo Industrial, S. A.
Houston National Bank
Tennessee Gas Building Corp.
Ten Ten Travis Corp.
Houston Testing Corp.--[illegible]
[illegible] Corp.
Philadelphia Life Insurance Co.--[illegible]
San Francisco Life Insurance Co.
Tennessee Life Insurance Co.
Qualitron Aero, Inc.
Foreign--
Tenneco International, N. V.
Tennessee Argentina, S. A.

Tenneco Inc. Sells Calif. County Farms

HOUSTON, Dec. 22 (AP) — Teneco Inc. disclosed today a $15-million sale of 30,000 acres of agricultural properties in Kern County, Calif.

The purchaser of the raw crop, developed and undeveloped properties in Kern County is Roberts Farms Inc. of McFarland, Calif.

Hollis Roberts, president of the purchasing firm, indicated the developed acreage would continue to be devoted to agricultural programs. Heggblade-Marguleas-Tenneco, the Tenneco agricultural subsidiary at Bakersfield, Calif., will continue to provide the marketing service.

N.W. Freeman, Tenneco chairman and president, said the sale is part of a policy to buy, develop, and sell land on a regular basis.

Tenneco has a number of packing and processing plants, including a new $6.3 million facility at Bakersfield.

The Houston-based firm has diversified interests ranging from oil and gas to automotive parts.

THE WASHINGTON POST
December 23, 1971

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THRIFTIMART, INC.

1837 South Vermont Avenue, Los Angeles, California 90006

Financial Profile

Market Value: $35,717,203
Revenues: $283,912,035
Assets: $65,151,246
Net Profits: $ 3,433,676

Chief Executive: Robert E. Laverty
Total Remuneration: $77,281.81
No. of Shares Owned/Controlled By: 14.9% common stock and 10.48% preferred

Physical Profile

No. of employees: 3965
Supermarkets: 73
Liquor-deli stores 5

Current property assets:
- Jersey Maid Milk Products (26.83% owner)
- 312,000 shares in Blue Chip Stamps valued on March 28, 1971 at $5,600,000.
- Real properties being held for sale with an estimated market value of $3,500,000.
- Smart and Final Iris Co. Wholesale Grocers
- Bi-Rite
- Smart and Final Iris Co.

TIMES MIRROR COMPANY

Times Mirror Square, Los Angeles, California 90053

Financial Profile

Market Value:	(234)	$583,628,000
Revenues:	(345)	$481,845,000
Assets:		$402,181,000
Net Profit:	(282)	$ 30,147,000

Chief Executive:	Franklin D. Murphy
Total Remuneration:	$150,240
No. of Shares Owned/Controlled By:	1500

Physical Profile

No. of Employees: 14,384

Times Mirror subsidiaries - see following page

Company also owns significant amounts of stock in the Tejon Ranch

Interconnecting Directorates

Bankamerica Corp.; Bank of America N.T. & S.A. (2); Dillingham Corp.; Bank of California, N.A.; Unionamerica Corp. (3); Western Air Lines; Pacific Lighting Corp.; Security Pacific National Bank; Santa Fe Industries; Republic National Bank of Dallas; American Airlines; North American Rockwell Corp.; Chandis Securities Co.; Pan American; Gibson, Dunn & Crutcher; Signal Companies; Northrup Corp; Wells Fargo Co.; TRW Inc.; Hallmark Cards Inc.; Ford Motor Co.; Samuel H. Kress Foundation, among others.

NEWSPAPER PUBLISHING

LOS ANGELES TIMES. The Los Angeles Times is the nation's largest standard-sized metropolitan newspaper with more than one million daily circulation. It has been the nation's leader in advertising volume for 18 consecutive years and has published over 100 million lines of advertising for the past six. It has also led the nation in news and features for the past 17 years.

NEWSDAY. Newsday is the nation's largest suburban newspaper, with a daily circulation in excess of 455,000. A tabloid with a magazine-like format, it is published every afternoon except Sunday and circulates primarily in Nassau and Suffolk counties, Long Island, New York.

THE DALLAS TIMES HERALD. The Dallas Times Herald, published evenings and Sunday, has a circulation of 241,000 copies daily and 285,000 copies Sunday. The paper ranks seventh among the nation's evening newspapers in advertising.

[illegible]ANGE COAST DAILY PILOT. The Orange [illegible]ast Daily Pilot serves seven suburban communities along the coast of Southern California's Orange County. The weekday afternoon paper's circulation is more than 40,000 copies.

BOOK PUBLISHING

HARRY N. ABRAMS, INC. is the foremost publisher of art books, prints, and original graphics in the United States, with offices in New York, The Netherlands, and Tokyo.

MATTHEW BENDER & COMPANY, INC. publishes law books, interpretive legal treatises, and form books on specialized areas of law for attorneys and accountants. The firm has offices in New York, Albany, Washington, D.C., and San Francisco.

FULLER & DEES MARKETING GROUP, INC., Montgomery, Alabama, is a direct mail firm that publishes books for homemakers and home reference.

THE C. V. MOSBY COMPANY, St. Louis, [illegible]blishes reference and text books and [illegible]rnals in the fields of medicine, dentistry, nursing and the biological sciences.

NEW AMERICAN LIBRARY, INC., New York, is one of the largest publishers of paperback books in the world, featuring Signet, Mentor, Signet Classics and Plume titles.

NEW ENGLISH LIBRARY, LTD., London, publishes paperback books and distributes books and magazines throughout the world.

THE SOUTHWESTERN COMPANY, located in Nashville, Tennessee, engages in direct, door-to-door marketing of religious and educational books.

THE WORLD PUBLISHING COMPANY, with offices in New York and Cleveland, is the nation's largest publisher of Bibles and the second largest publisher of dictionaries.

YEAR BOOK MEDICAL PUBLISHERS, INC., Chicago, is a leading publisher of year books in the fields of medicine and dentistry containing an annual review of international literature.

FOREST PRODUCTS

PUBLISHERS PAPER COMPANY has plants at Oregon City and Newberg, Oregon, that produce more than 40 grades of paper (primarily newsprint), and unbleached sulphite pulp (for use in paper production and for market sale). Lumber mills at Tillamook and Molalla, Oregon, manufacture kiln-dried fir and hemlock dimension lumber. In Portland the Dwyer division produces lumber, plywood, pre-fabricated home-building components and mulch for landscape and garden use. The company also owns 150,000 acres of timberlands.

PUBLISHERS FOREST PRODUCTS COMPANY OF WASHINGTON, Anacortes, Washington, produces plywood in a variety of sizes with a diversified line of panel products and hardboard. A newly acquired lumber mill at Everett, Washington, manufactures a variety of roof and floor decking for residential and commercial structures. The company owns 15,000 acres of timberlands.

PUBLISHERS FOREST PRODUCTS, Burney, California, operates a lumber mill and owns approximately 33,000 acres of timberlands in Northern California.

OTHER OPERATIONS

BROADCASTING & CABLE TV

Television station KDFW-TV, the CBS Television Network affiliate of The Times Herald Printing Company, is the leading television station in total audience for the Dallas-Fort Worth area.

CABLE TELEVISION. The Times Mirror Company has three cable television subsidiaries — TM Communications Company, Costa Mesa, California, TM Communications Company of Florida, Tampa, Florida, and Long Island Cablevision, Riverhead, New York — with 16 operating systems serving communities in Southern California, central Florida and eastern Long Island, New York.

MAGAZINE PUBLISHING

POPULAR SCIENCE PUBLISHING COMPANY, New York, publishes two specialty magazines, *Popular Science Monthly* and *Outdoor Life,* and operates two related book clubs, Outdoor Life Book Club and Popular Science Book Club. *Popular Science Monthly,* a long established magazine for do-it-yourself enthusiasts, concentrates on new product development, evaluation and usage, and recreational and household needs. *Outdoor Life,* the world's leading magazine for outdoor sportsmen, is devoted to fishing, hunting and related outdoor activities.

COMMERCIAL PRINTING

TIMES MIRROR PRESS. Times Mirror's commercial printing division produces telephone directories for communities in Southern California, Phoenix, Denver, Las Vegas and Hawaii. TMP also prints sales promotion catalogs, department store mailers, annual reports, election ballots, travel maps and law books.

CHARTS, MAPS & INSTRUMENTS

THE DENOYER-GEPPERT COMPANY, Chicago, a leading producer of maps, charts, globes and other educational products, is best known in the fields of geography and history, and is also a large producer of science study aids. The company's audio-visual division, *Denoyer-Geppert Audio-Visuals,* produces educational slide systems for classroom and other use.

THE H. M. GOUSHA COMPANY, San Jose, California, specializes in publication of maps, charts, guides, directories, and other travel-oriented publications. Through its *Chek-Chart Division,* Gousha also provides lubrication guides, charts, and a variety of other information to automobile service stations in the U.S., Canada and Australia.

JEPPESEN & COMPANY of Denver is the world's leading private publisher of aeronautical information for commercial airlines and private and business pilots. Its aeronautical charts and diagrams are used by most world airlines and other pilots. *SANDERSON FILMS, INC.,* Denver, produces audio-visual aviation ground school training systems.

PICKETT INDUSTRIES, with headquarters in Santa Barbara, California, designs, manufactures, and distributes metal and plastic slide rules, templates, scales and related items for scientists, engineers, technicians and students.

PLAN HOLD CORPORATION, Torrance, California, is the world's leading manufacturer of vertical, roll and lateral plan filing equipment used by the technical graphics industry.

TRANSAMERICA CORPORATION

701 Montgomery Street, San Francisco, California 94111

Financial Profile

Market Value:	(105)	$1,004,110,000
Revenues:	(96)	$1,483,916,000
Assets:	(50)	$3,723,237,000
Net Profit:	(195)	$ 42,645,000

Chief Executive: J.R. Beckett
Total Remuneration: $165,000
Value of Shares Owned/Controlled By: $676,000

Revenue Sources - see following page

Physical Profile

No. of employees: 24,000

Major Transamerica subsidiaries and services - see following page

Acquired Lyon Van and Storage Company on June 18, 1971.

Operation Notes

Occidental Life Insurance (a subsidiary) owns stock in the following corporations:

Carnation	16,365	Norton Simon	39,170	Bankamerica	25,000
Dow Chemical	3,600	Sears Roebuck	28,000	Security-Pac	40,000
General Foods	16,000	Standard Oil	30,000	Wells Fargo	10,000
Lucky Stores	30,900	Times Mirror	30,000	S.C. Edison	55,000

American Telephone and Telegraph 20,000

Interconnecting Directorates

Bank of America N.T. & S.A., New York; Colmery, Davis, Bennett, Leonard and McClure (law); Del Monte Corp.; States Steamship Co.; Knob Mill Mines Co.; McMicking & Co.; Wells Fargo Co.; University of the Pacific, among others.

Major Transamerica Subsidiaries and Services

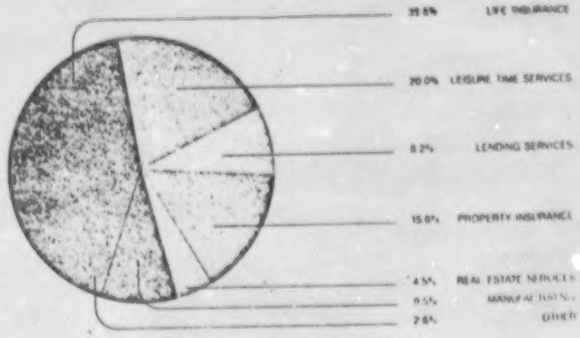
INSURANCE SERVICES
FIANCIAL SERVICES
- Transamerica Financial Corp.
- Transamerica Financial Corp. of Canada
- Pacific Finance Loans
- Transamerica Commercial Corp.
- Transamerica Credit Corp.
- Transamerica Car Leasing
- Transamerica Fund Management Co.
- Transamerica Fund Sales

LEISURE TIME SERVICES
EDUCATIONAL SERVICES
MANUFACTURING

REAL ESTATE SERVICES
- Transamerica Title Insurance Co.
- Transamerica Real Estate Tax Service
- Transamerica Relocation Service
- Bankers Mortgage Co. of Calif.
- Transamerica Mortgage Advisors
- Transamerica Development Co.
- Transamerica Homes Co.
- Mobile Housing Environments
- Trans-Land Co.

BUSINESS SERVICES

REVENUE SOURCES 1970



UNIONAMERICA

Box3100 Terminal Annex, Los Angeles, California 90054

Financial Profile

Market Value: $210,987,000
Revenues: $185,915,000
Assets: (81) $2,677,618,000
Net Profit: (446) $ 17,139,000

Chief Executive: H.J. Volk
Total Remuneration: $147,000
Value of Shares Owned/Controlled By: $1,530,000

Physical Profile

No. of employees: 4000
Offices: 28

Loan Portfolio compensation:
Commercial 74.2%
Real Estate 15.9%
Consumer 9.9%
Other real estate owned - $5,529,000

COMMERCIAL BANKING

Union Bank
Administrative Headquarters:
Fifth and Figueroa Streets, Los Angeles, California 90017
Harry J. Volk, Chairman
George A. Thatcher, President

Subsidiary Companies:
Union International Bank, Los Angeles, California
Unionamerica Capital Corporation, Los Angeles, California

MORTGAGE BANKING

Western Mortgage Corporation
Head Office:
3700 Wilshire Boulevard, Los Angeles, California 90005
Ott Thompson II, President

Subsidiary Companies:
Unionamerica Advisors, Inc., Los Angeles, California
WMC Development Company, Los Angeles, California

INSURANCE

Swett & Crawford
Home Office:
4201 Wilshire Boulevard, Los Angeles, California 90010
John C. Spencer, President

Subsidiary Companies:
Harbor Insurance Company, Los Angeles, California
Buffalo Insurance Company, New York, New York
Leslie H. Cook, Inc., Chicago, Illinois

APPRAISAL AND VALUATION SERVICES

Marshall and Stevens Incorporated
Corporate Office:
1645 Beverly Boulevard, Los Angeles, California 90026
E. P. Marshall, Chairman
A. D. Shiach, President

Subsidiary Company:
Cooper Appraisals Limited, Toronto, Ontario

COMPUTER AND INFORMATION SCIENCES

Unionamerica Computer Corporation
1000 South Hope Street, Los Angeles, California 90015
Neil E. Kennedy, President

Subsidiary Company:
Computer Input Corporation, Los Angeles, California

REAL ESTATE

Union Realco
445 South Figueroa Street, Los Angeles, California 90017
J. Edward Gibbons, President

Interconnecting Directorates

Union Oil Company of California; Di Giorgio Corp.; Union Oil of Canada, Ltd.; Pacific Lighting Corp.; Times Mirror Corp. (3); Western Air Lines (2); Pacific Mutual Life Insurance Co.; Southern California Edison Co.; Pan American; TRW Corp.; Motion Pictures International Inc.; A.J. Bayer; May Department Stores Co.; Milliken, Kohlmeier, Clark, O'Hara (law); Metropolitan Theaters Corp.; American Cement Corp.; Host International Inc.; Young's Market Co.; Amfac, Inc., among others.

UNITED BRANDS COMPANY

245 Park Avenue, New York, N. Y. 10017

Financial Profile

Market Value: $177,788,000
Revenues: (103) $1,395,704,000
Assets: (258) $1,090,017,000
Net Profit: $ -2,091,000

Chief Executive: E. M. Black
Total Remuneration: $173,000
Value of Shares Owned/Controlled By: $4,420,000

Physical Profile

No. of Employees: 73,000

United Brands Co. (United Fruit Co. and John Morrell & Co.) subsidiaries --- see following page.

United Brands started InterHarvest by buying the Demco Farms and Earl Myers Co. in October, 1968. A month later it bought up Nunes Bros. of California, Inc. and Toro Farms. In 1969 Inter-Harvest acquired the certain assets of Peter A. Stollch Co., Inc.; Jerome Kantro Enterprise; Salinas Valley Vegetable Exchange; Consolidated Growers Inc., and the stock of the Monterey County Ice and Development Co.

Operation Notes

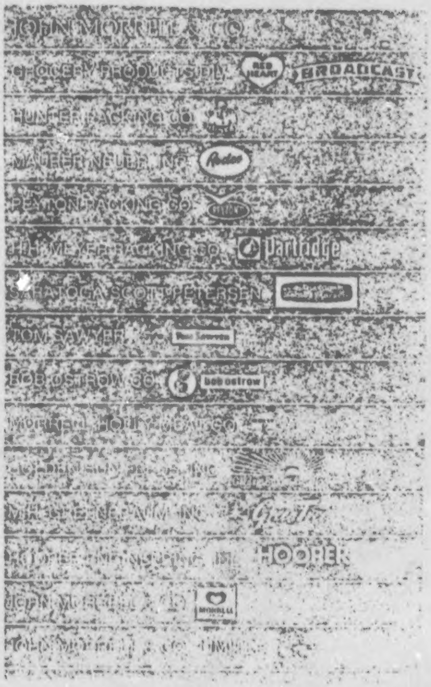
In 1970 Interharvest received a $23,311 ASCS subsidy.

Interconnecting Directorates

Missouri Pacific Railroad Co.; American Dual Vest Fund Inc.; Sherwood Corp.; American Research and Development Corp.; George D. Ruper Corp.; Welsh Grape Juice; General Corp. of Ohio; Paine, Webber, Jackson & Curtis (investment bankers); John Hancock Mutual Life; First National Boston Corp; S.D. Lunt & Co. (investment banking); John Price Jones Co.; Robert Johnston Corp.; Goodwin Proctor & Hoat (law), Condec Corp.; Bangor Punta Corp.; Lone Star Industries; Wells Television Inc., among others.

BEST COPY AVAILABLE

UNITED FRUIT CONTINENTAL N.V.
UNITED FRUIT JAPAN
FYFFES
FYFFES GROUP LIMITED
INTERHARVEST, INC
A&W
A&W DRIVE-INS
BASKIN-ROBBINS INC
REVERE SUGAR REFINERY
J. HUNGERFORD SMITH CO., INC
TROPICAL RADIO TELEGRAPH COMPANY
CLEMENTE JACQUES Y CIA, S.A. de C.V.
Clover Brand
COMPANIA NUMAR
POLYMER UNITED
FLORICULTURE DIVISION


JOHN MORRELL & CO.
RED HEART
BROADCAST
HUNTER PACKING CO.
Rodeo
PEYTON PACKING CO.
partridge
SARATOGA SCOTT PETERSEN
TOM SAWYER
BOB OSTROW CO.
bob ostrow
HOOPER
MORRELL

WELLS FARGO AND COMPANY

P.O. Box 3435, San Francisco, California 94120

Financial Profile

Market Value:	(342)	$ 388,056,000
Revenues:	(392)	$ 411,651,000
Assets:	(30)	$6,225,566,000
Net Profit:	(257)	$ 32,731,000

Chief Executive: Richard P. Cooley
Total Remuneration: $177,000
Value of Shares Owned/Controlled By: $86,000

Physical Profile

No. of Employees: 11,000

Subsidiaries:
- Wells Fargo Investment Fund (45% owner)
  - investments in 19 counties totaling nearly $6.5 million
  - capital base - $7.2 million
  - average investment - $345,000
- Wellsco Data Corp. (wholly-owned)
  - provides systems, programming and computer service
- Wells Fargo Securities Clearance Corp.
  - New York-based it handles stock and bond clearing transactions for bank and a limited number of outside customers.
- Wellsco Real Estate Management Corp.
  - advisor to a real estate investment trust organized by Wells Fargo.

Interconnecting Directorates

Castle & Cooke Inc. (3); Hewlett Packard Co. (2); Del Monte Corp. (2); Safeway Stores Inc. (2); Utah Construction and Mining Co. (3); Owens-Illinois Inc.; Stanford Research Institute; Consolidated Foods; Heller, Ehrman, White and McAuliffe (law); FMC Corp.; Pacific Gas & Electric Co. (2); Georgia Pacific Corp.; Litton Industries Inc.; Mutual of New York; Pacific Lighting Corp.; PPG Industries; Pacific Mutual Life Insurance Co. (2); Mailliard & Schmiedell; Northrup Corp.; Times-Mirror Corp.; Industrial Indemnity Co.; John Breuner Co.; Thelen, Marrin, Johnson & Bridges (law); Transamerica Corp.; Firestone Tire and Rubber Corp.; Flood Estate; Caterpillar Tractor Co.; Bath Industries; Frank B. Hall & Co.; Stanford University (business administration and trustee)(2); Levi Strauss & Co.; Ford Motor Co.; Cabot Corp.; Rice Growers Association of California; Ampex Corp.; Brobeck, Phleger and Harrison (law); Hawaiian Airlines; Hawaiian Trust Co., Ltd.; Pacific Lumber Co.; Pope & Talbot Inc.; Watkins & Johnson Co.; General Electric (2); University of the Pacific; University of San Francisco; Pima Mining Co.; First Security Corp.; Chyrsler Corp.; Western Pacific Railroad Co.; Yosemite Park & Curry Co., among others.

WESTERN BANCORPORATION

P.O. Box 54068, Los Angeles, California 90054

Financial Profile

Market Value:	(127)	$ 860,776,000
Revenues:	(227)	$ 760,987,000
Assets:	(10)	$ 11,409,817,000
Net Profit:	(149)	$ 54,222,000

Chief Executive: P.L. King
Total Remuneration: $120,000
Value of Shares Owned/Controlled By: $575,000

Physical Profile

No. of employees: 23,000
Banking offices: 654

Western Bancorporation Affiliated Banks

	Total Assets March 31, 1971
ARIZONA	
First National Bank of Arizona	$1,108,599,935
Southern Arizona Bank and Trust Company	298,296,926
CALIFORNIA	
United California Bank	5,307,546,953
COLORADO	
The American National Bank of Denver	140,984,383
Continental National Bank	41,469,003
The First National Bank in Fort Collins	69,871,531
IDAHO	
Bank of Idaho	175,768,225
MONTANA	
Bank of Glacier County	11,794,453
The Conrad National Bank of Kalispell	37,257,396
Montana Bank	41,661,228
NEVADA	
Bank of Nevada	164,237,876
First National Bank of Nevada	677,319,691
NEW MEXICO	
Bank of New Mexico	110,692,477
First State Bank at Gallup	24,630,696
New Mexico Bank and Trust Company	44,763,625
Roswell State Bank	21,403,761
Santa Fe National Bank	37,380,521
OREGON	
First National Bank of Oregon	1,934,[illegible],071
UTAH	
Walker Bank & Trust Company	320,472,896
WASHINGTON	
Pacific National Bank of Washington	778,284,740
WYOMING	
First National Bank of Casper	81,881,358
The First National Bank of Laramie	37,338,325
The First National Bank of Riverton	21,013,101

Interconnecting Directorates

Del Monte Corp.; Broadway Hale Stores Inc. (3); American Telephone and Telegraph Co.; Pacific Mutual Life Insurance Co. (6); Litton Industries, Inc.; Joshua Hendy International Corp. (steamship operators); International Telephone & Telegraph Co.; Standard Oil of California (2); Southern Pacific Co. (2); Cyprus Mines Corp.; Southern California Edison Co. (3); Boeing Airplane Co.; Berger, Briggs & Co.; Mutual of New York; Newmont Mining Corp.; Pacific Gas & Electric Co.; Pacific Telephone & Telegraph Co.; Skaggs Drug Centers; Willamette Industries; Foremost-McKesson Inc.; Newhall Land and Farming Co., among others.

WESTGATE - CALIFORNIA CORPORATION

Suite 900, United States National Bank Building, 1010 Second Avenue,
San Diego, California 92101

Financial Profile

Market Value: $32,982,000
Revenues: $141,642,000
Assets: $214,776,000
Net Profit: $ 2,841,000

Chief Executive: C. Arnholt Smith
Total Remuneration: Not Available
No. of Shares Owned/Controlled By: 2932 Class A Common Stock and 1,600,000 Class B Common Stock

Physical Profile

No. of employees: 5000
Subsidiaries: 42

Air California (81% owned)
- intra-state carrier

Golconda Corp. (20% costing $7.8 million)
- stainless steel food service equipment and liquefied gas regulation
- owns 2500 acres of undeveloped mineral properties in Idaho
- owns 700,000 shares of Hecla Mining Co. - largest U.S. producer of silver

Yellow Cab Co.
- L.A., S.F., Oakland, Berkeley, Alameda, San Jose, Daly City, Beverly Hills, Burbank, El Segundo and Palm Springs.

AirporTransit
- airport bus service in L.A., Oakland, San Jose.

Westgate Caribe, Inc.
- $9,000,000 tuna cannery at Ponce, Puerto Rico
- other canneries at San Diego and Terminal Island, L.A. and a new one under construction in Hammond, Oregon.

Pet Food (Mini-Bits)
- ocean fish, salmon flavor and seafood dinner

Southland Produce Co.
- grows, processes and distributes food and produce

Westgate California Insurance Co.
Westgate Plaza Hotel in San Diego
Westgate-California Realty Co.
- in a joint venture are building a $50 million, 78 acre shopping center

Sold a large cattle ranch to Roberts Farms Inc. - for details see following page.

NOTE 4 — Sale of cattle ranch:

Just prior to December 31, 1969 a Westgate subsidiary owned a cattle ranch of approximately 12,000 acres in Kern, Kings and Tulare Counties in California which it had acquired over more than an eight year period. As of December 31, 1969, such subsidiary sold 1,040 acres of the ranch for $1,560,000 to a corporation controlled by Mr. M. J. Coen (see Note 2), resulting in a gain of $1,039,000. During 1970 such Westgate subsidiary sold 2,140 acres of the ranch to Kernville Brokerage Co., a newly created corporation controlled by Mr. M. J. Coen. The sales price was $3,210,000 (received in full at the time of sale) on which the Westgate subsidiary recorded a gain of $2,079,000.

In December 1970, such Westgate subsidiary transferred for a purchase price of $12,542,000 the remainder of the ranch, the improvements thereon, and the related cattle, machinery and equipment to three newly organized Westgate subsidiaries, Kingsburg Oil Co., Strathmore Cattle Co., and Woodlake Farms. To finance such purchase, the three newly organized subsidiaries borrowed from the United States National Bank an aggregate of $9,125,000 and received capital contributions from Westgate. As of December 31, 1970, Westgate sold all the capital stock of the three newly-organized subsidiaries for $3,195,000 to a corporation (owned by an independent real estate sales agent, who is also sales agent for Westgate's San Luis Rey properties, and his wife) which made the acquisition for the purpose of syndicating the properties through a public sale of limited partnership interests. The purchaser borrowed the $3,195,000 from the United States National Bank. As a result of these sale transactions, Westgate recorded a gain of $5,405,000.

In October 1970 an appraisal of the entire ranch (12,000 acres), obtained by the purchaser from a qualified independent appraiser in contemplation of the transaction consummated as of December 31, 1970 as set forth above, valued the ranch (including related cattle valued at $1,700,000 and machinery and equipment) at $14,500,000. In April 1971 an appraisal, obtained by Westgate's independent public accountants from a qualified independent appraiser, The American Appraisal Company, Inc., of such ranch, cattle and machinery and equipment, indicated a value on a cash sale of $8,000,000, which amount was less than the amounts at which these assets had been carried in the consolidated accounts of Westgate and its subsidiaries. Because of this appraisal and the participation in the transaction of United States National Bank, the independent public accountants were of the opinion that gain could not then be properly recorded on the above-mentioned sales. In May 1971 another appraisal obtained by the purchaser from a qualified independent appraiser valued the ranch (including related cattle and machinery and equipment) in excess of $19,500,000. Thereupon, Roberts Farms, Inc., owned by Mr. Hollis B. Roberts and family, purchased for cash without recourse at their outstanding principal amount plus accrued interest the above obligations of $9,125,000 and $3,195,000 to United States National Bank; as a consequence, any possible contingent liability of Westgate if the borrowings from the Bank had exceeded the fair market value of the collateral was eliminated thereby permitting recognition of the gain on the above-mentioned sales. Mr. Roberts, who through Roberts Farms, Inc. or other companies, owns or operates over 60,000 agricultural acres comprised of a variety of farm products including citrus orchards, nut groves, cotton and grain and also serves as contract manager for other owners of such orchards and groves in Kern, Kings, Tulare and certain other counties in California, is and was during 1970 the contract manager of the above-mentioned cattle ranch and is the proposed general partner of a limited partnership being formed by the purchaser which plans public syndication of the ranch in 1971.

The above-mentioned sales of ranch properties or corporations owning ranch properties were made at prices fixed as the result of arms-length negotiations between the buyers and sellers, and such purchasers and their affiliates and Mr. Roberts are independent third parties and not affiliated with Westgate or any of its subsidiaries or affiliates. There are no arrangements or understandings whatever between Westgate or any of its subsidiaries or affiliates and such purchasers or their affiliates or Mr. Roberts with respect to, and neither Westgate nor any of its subsidiaries or affiliates has any interest or obligation, contingent or other, in or with respect to, the ownership, operation, development or disposition of all or any part of the ranch property or any expense, loss or profit relative thereto.

AGRICULTURAL ECONOMIC REPORT NO. 156

CORPORATIONS HAVING AGRICULTURAL OPERATIONS

Preliminary Report II

ECONOMIC RESEARCH SERVICE • U.S. DEPARTMENT OF AGRICULTURE

PREFACE

In November 1967, the Secretary of Agriculture directed the Economic Research Service to conduct a survey to determine the number, kinds, and general characteristics of corporations that were directly involved in the production of farm products. Concern had been expressed over the apparent increase in the number of nonfarm corporations reported to be buying land and initiating new farming enterprises. Few data were available by which to judge the importance of this trend or to evaluate the possible impact on market prices of farm products and on local business communities.

The first preliminary report summarizing the results of this inventory type survey for 22 States was published in August 1968 (Agr. Econ. Rpt. 142). This report contains similar data for 25 additional States, (Northeast, Appalachian, Southeast, Delta States, and Southern Plains regions) together with the introduction and methodology sections that appeared in the first preliminary report. The introduction and methodology and certain other explanatory portions have been included in this report to avoid the necessity of interested readers having access to the first preliminary report. A final report summarizing the results for all 50 States will be issued later. A special mail survey, which is expected to provide more complete coverage than was obtained from the survey techniques used for the other States, is in progress in California. Survey results have been obtained for Alaska and Hawaii but are not included in this report.

The survey sought to identify every incorporated business that was directly engaged in the production of farm products and to obtain a few descriptive facts about each. Questionnaires were completed by the managers of county offices of the Agricultural Stabilization and Conservation Service. In addition to using records maintained in each ASCS office, the managers also received assistance from county officials and from local representatives of other State and Federal agencies. Without such assistance, a survey of this scope could not have been completed as quickly as it was. The cooperation and assistance of these many individuals is gratefully acknowledged.

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Washington, D.C. 20250 April 1969

SUMMARY

A total of 4,850 corporate county units operating about 13 million acres of land were found in the 25 States included in this report. Such units represented less than 1 percent of all commercial farms and 5 percent of the land in farms in these States. About one-third of the total number and two-thirds of the total acreage in corporate county units was in 2 States--Florida and Texas. In Florida, 9 percent of the total number of commercial farms and 31 percent of the land in farms were corporate. Several States in the Northeast also had a relatively high proportion of their commercial farms operated by corporations.

A "corporate county unit" includes all the agricultural operations of an incorporated business within a county. These may involve only one farm or several. Those corporations that had operations in more than one county or State were counted in each county. Hence, the number of corporate firms is somewhat less than the number of county units but the number of farms is larger. Because differences between the numbers of county units and corporate firms are slight, the two terms are used interchangeably in this report.

More than three-fourths of the corporations in the 25 States owned all the land they operated. Only 6 percent rented all the land and 16 percent owned part and rented part. The proportion of corporations that own all or part of the land they operate is substantially higher than for all commercial farms. The proportion of full ownership was highest (84 percent) for individually owned and controlled corporations. Among the regions covered by this report, rental of land by corporations was most common in the Southeast (excluding Florida), the Delta States, and the Southern Plains States.

Nearly two-thirds of the corporations in the 25 States were family corporations, 15 percent were individually owned or controlled, and 21 percent were other types of corporations. Forty-four percent had one or more business activities in addition to their agricultural operations. Typically, these activities involved the manufacture or sale of feed or fertilizer and processing or marketing of agricultural products. The combination of farming with local, nonfarm-related business interests was common, especially in the Appalachian region, Pennsylvania, and Alabama. The farming operations of these corporations were usually smaller than the average for all corporations.

Agricultural production was the most important business activity, in terms of gross sales, for 69 percent of the corporations in the 25 States. In the Delta States, this percentage was 77 percent, and in Florida, farming was the first ranked business activity for 80 percent of the corporations.

Total gross sales of farm products from all corporations in the 25 States were estimated at $930 million in 1967 or 6 percent of total farm cash receipts for these States. About one-third of the corporations had estimated gross sales of less than $40,000 and one-tenth had gross sales of $500,000 or more. Slightly over half of the corporations in the $500,000 or more category were classified as family corporations.

The major crops produced by corporations in the 25 States were soybeans, cotton, sugarcane, corn, hay, citrus, and "other fruits." The importance of these crops varied by regions. Sugarcane acreages were especially large in Florida and Louisiana.

There were more beef cattle reported on corporate farms than any other type of livestock in all regions except the Northeast, where milk cows were predominate. Large-scale poultry operations were found in most States, but were most frequent in the Appalachian and Southeast regions. Although cattle feeding operations were common, they were of relatively small size, except in Texas.

Nearly one-half of all corporations were reported to have started farming as a corporation prior to 1960 and 42 percent during 1960-66. Nine percent of all corporations first began farming as a corporation in 1967 or the first half of 1968.

CORPORATIONS HAVING AGRICULTURAL OPERATIONS:
PRELIMINARY REPORT II

By

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INTRODUCTION

The use of the corporate form of business organization by firms engaged in the production of agricultural products is not a new phenomenon, but it is an alternative form that is currently receiving attention.1/ Historically, farms and ranches have been one of the few types of businesses that have continued to be organized and operated mainly as sole proprietorships or partnerships. More than 90 percent of all farm businesses are of this type even now. In the past, capital requirements for entry were typically lower than for many other types of businesses, and the transfer of ownership from one generation to the next did not pose serious problems. The assets accumulated during the lifetime of each owner could be passed by inheritance and gift without serious depletion from State and Federal taxes.

The mounting stream of new production technology, together with highly organized and increasingly complex farm supply and marketing systems, has in some cases created pressures for modifying the organizational form of the farm business. Capital requirements for entry into the production of some types of crops and livestock on a scale sufficiently large to utilize available production technology and to gain access to markets often exceed the amount one person can supply. Inheritance and gift taxes often claim a significant percentage of the total assets of the larger farm businesses, some of which have been built up over several generations. Incorporation of such farms offers more flexibility in planning for continuity of the business between generations and for softening the impact of such taxes.

The term "corporation farming" needs to be examined and understood more clearly. It can mean any business that has been incorporated under the laws of a particular State and produces one or more agricultural products. Incorporation creates a legal entity that is subject to a different set of rules

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1/ A special study of large-scale farms in 1930 showed that more than two-fifths of the large-scale truck and fruit farms and a fourth of the cash-grain farms were incorporated at that time. The study also found that incorporated farm businesses were more prevalent in the western third of the country than elsewhere, a situation that is still true. See Mumford, D. Curtis, Large-Scale Farming in the United States, Bur. Agr. Econ., U.S. Dept. Agr., 1939.

for conducting the business from those that apply to a sole proprietor or a partnership. The ownership of the assets of the business can be separated from management, the firm can obtain outside equity capital, a different set of tax laws apply, and provisions can be made for continuity of the business upon the death of the founder.

Although all incorporated businesses have certain common legal characteristics, they differ significantly in the ways they came into being and how they are operated. In many States, only one person is needed to incorporate a business, and he can operate it in much the same way as before incorporation. Other States require a minimum of three persons, a requirement that can be met by designating members of the same family as the incorporators. There may be only one major shareholder who continues to exercise dominant control and ownership. Management may be shared by several others who may or may not have significant investments.

The incorporated family farm business was the most common type of corporation found in the survey. Typically, such businesses are larger-than-average farms and ranches that have adopted the corporate form of business organization. The incorporation of family farm businesses has been facilitated by research and educational efforts of most State colleges and the U.S. Department of Agriculture.2/ An additional incentive was provided by special Federal tax legislation passed in 1958--Subchapter S--to extend most of the advantages of the general corporation to small businesses. According to data compiled by the Internal Revenue Service from tax returns, the number of farm tax returns filed under these provisions increased from less than 500 in 1958 to about 4,900 in 1965. This number represented more than one-fourth of all corporations classified as "farms" by the IRS.3/

There are additional family corporations that have been organized as general corporations, without the restrictions imposed by Subchapter S.4/ These may be either strictly family farm corporations, or family corporations having nonfarm business interests in addition to farming. Typically, these are local businesses engaged in the manufacture or sale of farm supplies, or in the processing or marketing of farm products or other local business.

2/ Articles have been published in law journals which discuss the legal and tax aspects of incorporation of family farm business. Extension reports also have been issued by a number of States. One of the most recent and comprehensive publications of this type is The Farm Corporation, North Central Region Extension Pub. No. 11, Iowa State Univ., Nov. 1967.

3/ IRS data on corporate tax returns showed 18,526 farm corporations in 1965 with total assets of $5.7 billion and business receipts of $4.9 billion. Average business receipts per return were $263,000. Farms were first separated from the broader industrial classification of "agriculture, forestry, and fisheries" in 1963. In that year, 16,300 farm corporations were reported and in 1964, 17,600. Nearly half of the total increase in all farm corporations for these 3 years was accounted for by new Subchapter S corporations.

4/ The principal requirements are that only 1 class of stock may be issued and there be no more than 10 shareholders.

This combination of direct production with one or more "agribusiness" functions has been called vertical integration or coordination. A considerable number of such corporations were found in the survey.

There do not appear to be any basic differences between the family farm corporation and the nonfarm family corporation. Both have a limited number of shareholders, the stock is closely held, and there is usually nominal separation of ownership and management. The agricultural operations of the nonfarm family corporation tend to be smaller in relation to their nonfarm businesses.

The third type of corporation, which is currently attracting more attention than the two types just described, is the larger, often publicly owned, corporation. Some of these have been engaged in farm production for many years. Others have more recently expanded into direct production to complement their agribusiness interests. Some of the newest entrants are firms that often have little or no previous experience in farming or in the farm supply or marketing fields but see business opportunities in producing farm products. The management of such firms tends to view farming as a vehicle for applying their business experience and for realizing an attractive return on equity capital. Also, they often seek to exploit the most advanced existing technology and perhaps develop new technology. Frequently, also, they are seeking cost savings in the purchase of farm supplies, or in producing one or more products to meet market requirements. Direct production costs need not be less than they would have to pay under production contracts if a market advantage can be gained with a more assured supply or a product of more uniform quality.

Despite the attention that a few such corporations have received as a result of entering field crop production, the survey indicates that they are involved much more extensively in specialized livestock production. Thus far, production of broilers, eggs, and turkeys had moved closest toward being a manufacturing process. Raw materials can be assembled at a plant site, specialized technical knowledge and automation can be applied to the feeding operations, and output can be sold through previously arranged market outlets.

Much of the technology needed to produce beef and pork under environmentally controlled conditions is already available and has attracted a number of "outside" corporations which are willing to assume the risks involved. Many of them have not been in business long enough to determine if their costs are in line with expectations or if profits will prove to be comparable with those from nonfarm business opportunities.

Within the 25-State area covered by this report, the major type of outside corporation with substantial crop operations was found in areas having the potential for land clearing, drainage, and development. Such operations were found chiefly in the Atlantic Coastal Plain extending from North Carolina to and including Florida, and in the Delta portions of Arkansas, Mississippi, and Louisiana.

Outside capital has been attracted to these two areas in recent years because of the opportunity to acquire large contiguous tracts of land to which capital and technology could be applied with the expectation that the developed land would appreciate. Soybeans has been the chief crop, partly because of acreage restrictions on cotton and other crops and partly because of the favorable yield and price expectations. Double cropping of soybeans and wheat has been possible in favorable growing seasons, yielding a net return comparable with substantially higher priced Corn Belt land.

THE USDA SURVEY OF CORPORATION FARMS

The basic approach used in developing a national inventory of corporations having farm or ranch operations was to consult key persons in each county having knowledge of local conditions. Reporting forms and detailed instructions were sent to each ASCS county-office manager. He was instructed to consult his records and to confer with other persons in the county, such as the registrar of deeds, the extension agent, local representatives of other Federal agencies, and the ASCS committeemen, in developing a list of all corporations directly engaged in farm production. Corporations owning land but not operating it directly were specifically excluded.

A limited number of basic facts were obtained for each corporation. When a corporation had more than one operating unit within a county, all separate operations were combined for that firm. Thus, the survey provided an inventory of "county units" of operations, rather than a count of separate farms or ranches, or of business firms. The actual number of corporations is somewhat less than the number of "county units" indicated, but the number of farms is greater.5/

Reports were received for 4,850 corporate county units in the 25 States.6/ About one-fourth of these (1,215) were in Florida.7/ Texas randed second in total number (455), followed by Arkansas (301) and Mississippi (294).8/ Although in most States only 1 or 2 percent of all commercial farms were corporations, the proportion was 9 percent in Florida and 3 or 4 percent in several States in the Northeast. For the 25 States, the proportion was about 1 percent (table 1).

Total land operated by the reported corporations amounted to about 13 million acres. However, Florida accounted for nearly 30 percent of this total, and Texas for another 34 percent. Corporations accounted for 31 percent of the total land in farms and ranches in Florida. In Oklahoma, where State laws place restrictions on corporations owning land in rural areas, the proportion was only 0.4 percent.

5/ Because only minor differences are involved, the term "corporations" is used interchangeably with "corporate county units" in this report.

6/ An additional eight grazing associations and 83 farms and ranches operated by institutions also were reported but have been excluded from the summary.

7/ Results for Florida are shown separately because of its dominance in the 4-State region.

8/ IRS data on tax returns of corporations classified as "agriculture, forestry and fisheries" indicate that probably less than half of all farm corporations in Texas were obtained in the survey. This underenumeration is believed to be greater for ranches than for field crop operations.

The classification of corporations as to type showed that 64 percent were family corporations and 21 percent were "other" or nonfamily corporations (table 2). The remaining 15 percent were classified as "individual" corporations, indicating that ownership and control rested chiefly in one person. Many States permit this type of one-man corporation, but it was not possible in the survey to distinguish clearly between such corporations and those having several "silent" or inactive shareholders who may have been members of the owner's family.

The variations among States in the proportions of these three types of corporations were not great. The highest proportions of "other" corporations were reported in Kentucky, South Carolina, and Pennsylvania and the lowest in Maine, New Hampshire, and Rhode Island.

In terms of land operated by corporations, "other" corporations accounted for 26 percent of the total acres, and family corporations for 63 percent (table 3). In several States, notably South Carolina, North Carolina, and Massachusetts, the average acreage operated by "other" corporations was appreciably larger than for family corporations (table 4). In the 25 States as a whole, the average acreage per corporate county unit was nearly 7 times the average of all commercial farms. The range extended from a high of 13 times the average acres of all commercial farms in North Carolina, to less than 5 times in most States in the Northeast.

Business Interests Other Than Farming

Over one-half (56 percent) of all corporations were reported to be engaged only in farming and ranching, 19 percent had one or more agribusiness interests besides farming, and 20 percent had other business activities not related to their agricultural operations (table 5). The combination of farming and agribusiness was more prevalent in the Northeast than in the other regions. Typically, these activities involved the manufacture or sale of feed or fertilizer, sale of farm machinery, and livestock processing or marketing.

The combination of nonfarm business interests with farming was only slightly more prevalent than the combination of agribusiness and farming. This was more pronounced in the Appalachian region, Pennsylvania, and Alabama, where about one-third of the corporations represented local business firms that were engaged mostly in wholesale or retail trade and also had a farming enterprise.

A comparison of the importance of farming in relation to other business activities showed that farming was secondary in terms of gross sales for more than one-third of all corporations (table 6). This tendency was most apparent in the Appalachian and Southeast regions (excluding Florida) and in the Northeast. The primary business of such firms tended to be wholly unrelated to farming.

Of those corporations engaged only in farming, 71 percent were found to be family corporations, compared with 61 percent for those having agribusiness or nonfarming business interests (table 7). About one-third of the agribusiness corporations were not family owned. Individually owned corporations were more prevalent when farming was in combination with a nonfarm business than with an agribusiness or with farming only.

For the 25 States as a whole, the average acres operated by corporations combining both agribusiness and nonagribusiness interests with farming were substantially larger than those engaged only in farming (table 8). This was especially apparent in the Southeast and Delta States regions.

Gross Sales of Farm Products

Although precise estimates of gross sales of farm products produced by corporations could not be obtained in the survey, the acreages of crops and numbers of livestock reported for their farm and ranch enterprises provided a basis for estimates. Gross sales of 4,850 croporations were estimated at $930 million in 1967, or about 6 percent of the cash receipts from farm marketings by all farms in the 25 States in that year. About two-thirds of the total for all corporation farms came from family corporations and over one-fourth from "other" corporations.

At the regional level, gross sales by corporations in the Appalachian and Southern Plains were probably about 3 percent of total sales by all farms. In the Southeast, the proportion was about 10 percent, chiefly because of the large number and size of corporation farms in Florida.

A distribution of corporate farms by estimated gross sales showed that 22 percent had less than $20,000 in sales in 1967 (table 9). In the Appalachian region, more than one-third had gross sales of less than $20,000. Only 10 percent of the corporate farms had gross sales of $500,000 or more. Most of the largest operations involved eggs, broilers, sugarcane, rice, and cotton.

Firms having agribusiness interests tended to have higher gross farm sales than did the farming-only corporations (table 10). The farming operations by firms with agribusiness interests tended to be the largest in the Delta States where cotton ginning is often a part of large-scale cotton production.

Among the corporations that had county-unit sales of $100,000 or more (about 1,390 cases reported), the proportion of family corporations declined as size of operations increased. For the 25 States, 71 percent of the firms having sales of $100,000 to $200,000 were family corporations (table 11). For units having $200,000 to $500,000 in sales, 63 percent were family corporations, and for those with sales of $500,000 or more, 53 percent were. Nearly two-fifths of these largest operations were classified as "other" corporations. However, only 135 such operations were reported in the survey.

Crops and Livestock Produced

The major crops for which acreages were reported accounted for a total of 2.6 million acres in the 25 States (tables 12 and 13). Nearly 38 percent of this crop acreage was in the three Delta States and was largely devoted to soybeans, cotton, and sugarcane. These crops accounted for 80 percent, and soybeans alone accounted for 53 percent, of the reported land in crops. In Florida, sugarcane and citrus accounted for 71 percent of the reported land in crops. Fruit, corn, and hay accounted for 84 percent of land in crops in the Northeast region. Fruit alone accounted for 52 percent of all crops on corporate farms in that region.

The crop with the largest average acreage was sugarcane, which averaged 2,641 acres in Florida and 1,125 acres in Louisiana (table 13). Acreages of potatoes and vegetables also were large in Florida. Soybeans in the Delta States averaged 1,054 acres per county unit, and cotton, 376 acres. Tobacco, a crop usually grown on small acreages, averaged 274 acres per county unit in the Northeast, chiefly the shade-grown wrapper type grown by cigar corporations. A few large blueberry and cranberry operations contributed to the relatively large average acreage of fruits in the Northeast region.

Although detailed comparisons have not been made, it appears that livestock operations on corporate farms were more prevalent than crops. This was especially true for the Southern Plains and the Northeast. The raising of beef cows was the most frequently reported livestock enterprise, followed by yearling cattle and milk cows. The number of beef cows ranged from an average of 105 head in the Northeast to 661 head in Florida. The average for the 25 States was 348 head (tables 14 and 15).

Milk cows were a frequently reported class of livestock. The average number per unit ranged from 131 in the Northeast to 854 in Florida.

Cattle feeding enterprises were frequently reported and also were substantially larger than for typical farmer-feeders in most regions. The average number ranged from 193 head in the Northeast to 7,381 head in the Southern Plains.

Although not as frequently reported, poultry enterprises were operated in large units in all regions. For commercial egg production, the number of laying hens ranged between 48,000 and 170,000 per county unit for the 5 regions. Broilers were mostly concentrated in the Delta, Southeast, and Northeast.

Approximate Year of Incorporation

The net annual rate of increase in incorporated farm and ranch businesses could not be estimated from the survey because no records were obtained for those firms that have gone out of business. Internal Revenue Service data suggest a net annual increase of from 5 to 7 percent for farm corporations, or about the same annual rate as for all incorporated business. The gross rate of increase is somewhat higher than the net rate because of dissolutions and conversions to sole proprietorships and partnerships each year. The survey indicated that 8 percent of the family corporations first began farming as corporations in 1967 and the first 6 months of 1968, compared with 11 percent of the "other" corporations (table 16). In the Southern Plains, Delta States, and the Southeast excluding Florida, the proportion of "other" corporations of recent entry into farming was 21, 16, and 16 percent respectively.

Taking all corporation farms in the 25 States, 49 percent began farming as a corporation before 1960 and 42 percent during 1960-66. The highest proportions of pre-1960 corporations was reported in the Northeast and Southeast. The highest proportions organized in the 1960-66 period were in the Southern Plains and Delta States.

Land Tenure of Agricultural Corporations

Most corporations tended to own all the land they farmed (table 17). For the 25 States as a whole, 78 percent owned all land they farmed, while only 6 percent rented all of the land farmed. The percentage of full owners was greatest (84 percent) for corporations that were owned and controlled by individuals. The percentage of corporations with full ownership of land was highest in Florida, where 87 percent of all corporations and 90 percent of the individually owned corporations owned all the land farmed.

There was no consistent pattern among regions, or by type of corporation, in the average acreages operated under various tenure arrangements (table 18). Much of this variation is associated with the kinds of crops or livestock enterprises involved. Deciduous fruits in the Northeast, and citrus in Florida, for example, are seldom grown on rented land, whereas livestock ranches in the Southern Plains and elsewhere usually contain both owned and rented land. Relatively little acreage is involved in specialized poultry operations and this is predominantly owned because of the substantial investment in buildings and equipment.

METHODOLOGY AND LIMITATIONS

Several alternative means of identifying agricultural corporations were considered and evaluated. The agricultural census of 1964 did not contain questions concerning the organizational form of the farms enumerated and hence could not be used. Examination of the articles of incorporation filed in each State would have provided a limited amount of data, but this approach was rejected because of several considerations: (1) Most States do not classify business concerns filing such records according to industry or business codes. Hence, large numbers of records would need to be searched to select those desired. (2) The stated purposes contained in articles of incorporation are often broadly worded, making it difficult to select those firms that would conform to a uniform definition of an agricultural business. (3) Firms that were originally incorporated for a specific purpose, other than farming, may have subsequently entered farming. The current nature of such businesses would not be apparent from the firm name or from amendments to the original articles of incorporation.

Area probability sample surveys were considered but were rejected because of the nonrandom geographical distribution of firms and the large sampling errors that would result. The opportunity to approach complete coverage by utilizing the records and the personal knowledge of ASCS personnel in every county appeared to be the best alternative within the limits of time and funds. A pretest of the initial schedule and instructions was conducted in 14 counties in 10 Midwestern States before the first phase of the survey was undertaken. Personal interviews by research personnel were made in these counties to determine the accuracy and completeness of the reports submitted. The results of these tests indicated that ASCS offices could provide the data needed to meet the general objectives of the survey.

Only corporations directly engaged in the production of one or more agricultural commodities were to be reported. Corporations owning land but renting it to others under cash or share-rental arrangements were specifically excluded.[9] The term "agricultural operations" was broadly defined to include the production of all crops and livestock and livestock products, including feedlots and broiler, turkey, and hatchery operations. However, it was not always possible for ASCS personnel to clearly distinguish between the contract and the fully integrated production of such firms. This problem may have resulted in some errors in the reported numbers of broilers and laying hens and turkeys, and in the gross sales of the firms involved.

The only types of operations specifically excluded were commercial forestry operations, Christmas tree farms, hunting and fishing clubs, and farms and ranches operated strictly as recreational enterprises. Reports were submitted for grazing associations and for farms and ranches operated by religious organizations and other institutions because most are incorporated, but such operations have been excluded from the preliminary tabulations. There were 456 such cases obtained for 47 States.

The classification of corporations as to type (individual, family, and "other") was based on local knowledge and was done without access to the legal documents of incorporation. State laws vary as to the minimum number of persons required to form a corporation, ranging from only one in such States as Iowa, Minnesota, Wisconsin, and Missouri, to three in many other States. Thus, in many States, it is possible to form a corporation within a family of husband, wife, and one other member. Such corporations may appear to be individually owned to an outside observer, because only one member is identified with the firm. Thus, the distinction between individual and family corporations may be less meaningful than between family and "other" corporations with diversified ownership.

When a corporation operated more than one separate unit within a county, all operations in that county were combined into a single report. A tabulation of the number of units within a county for the first 22 States showed that 87 percent of the corporations reported had only one operating unit. An additional 11 percent had two or three units and only 2 percent had four or more. Those firms having more than one unit had an average of 3.2 units. The reporting form also asked for the number of units operated by each corporation in other counties within a State and in other States. A few corporations having operations in more than one county or in two or more States were identified.

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[9] Firms are classified as farms in the summary of tax returns compiled by Internal Revenue Service if they report sales of farm products received under share-rental arrangements.

This treatment of multiunit operations differed from the procedure followed by the 1964 agricultural census in which each unit was usually counted as a separate farm. Hence, the number of corporate county units cannot be compared precisely with the number of farms reported by the census. Data compiled by the Internal Revenue Service from corporate tax returns represent a consolidation of all the separate business activities of firms whose principal business activity is farming. The business receipts of such firms include those from nonfarm business activities as well as from one or more separate farming units. Conversely, many firms which have agricultural production that is of minor importance in relation to their major business are excluded from IRS data for farm corporations. This occurs chiefly for firms classified in such industries as mill feeds, grain mill products, and food processing and marketing. About one-third of the firms identified in the survey were judged to have other business activities that were more important, in terms of gross sales, than were their farming activities. Because of these differences in definitions, IRS data provide only a general indication as to the completeness or the accuracy of survey results.

Total acres operated and acreages of specific crops were generally available from county ASCS records. Numbers of livestock were necessarily approximations, as were the estimates of gross sales of farm products. However, a detailed computer edit program was used to compare the probable gross sales value of the crops and livestock reported with the class interval of estimated gross sales. There is some evidence, however, that specialized livestock operations were less completely reported than were those operations involving the major field crops. Because of these varying degrees of underreporting between crops and livestock, acreages and numbers should not be compared directly with the total number of corporations or with census or USDA crop and livestock statistics.

Although the survey design called for complete enumeration, some qualifying corporations were undoubtedly missed. However, there are no independently determined data available by which to measure the extent of underenumeration. Using IRS tax data and census data pertaining to manager farms as guides, it appears that probably less than half of the total number of corporations in Texas was obtained in the survey. The number obtained for Florida also appears to be less than might be anticipated. Survey returns also were substantially below IRS numbers in several Northeastern States, notably New York, Massachusetts, and New Jersey. However, many of the farm corporations filing tax returns in these States have headquarters in New York City and Boston, but their farms and ranches are in other States. About half of all corporate returns classified as agriculture, forestry, and fisheries filed in New York State in 1965 were received by the Brooklyn and Manhattan district office of IRS. Similar differences between the location of the headquarters of firms and their production facilities may be observed in the statistics for other States.

There are many aspects of incorporated farms and ranches that could not be explored by the survey techniques employed. Such questions as production efficiency of large-scale operations, their impact upon pricing and competition in local markets, and their possible tax shelter advantages require study and analysis. However, considering the almost complete lack of any data on corporations, even the limited information produced by the survey will provide a basis for such additional research.

Table 1.--Farms and acres operated by corporations having agricultural operations as percentages of commercial farms, 25 States, 1968

State and region	Commercial farms 1/		Corporations 2/		Corporations as percentage of commercial farms	
	Farms	Land in farms	Farms	Land in farms	Farms 2/	Land in farms
	Number	1,000 acres	Number	1,000 acres	-----Percent-----	
Maine	5,500	1,665	57	92	1	6
New Hampshire	1,727	465	14	6	1	1
Vermont	5,274	1,975	42	25	1	1
Massachusetts	3,825	567	120	68	3	12
Rhode Island	440	50	14	6	3	12
Connecticut	2,875	430	117	60	4	14
New York	38,000	9,675	271	174	1	2
New Jersey	5,673	814	101	47	2	6
Pennsylvania	41,500	7,499	228	115	1	2
Delaware	2,627	604	50	39	2	6
Maryland	11,413	2,560	164	137	1	5
Northeast	118,854	26,304	1,178	769	1	3
Virginia	31,000	7,882	258	331	1	4
West Virginia	4,800	1,750	52	42	1	2
North Carolina	80,708	10,328	223	383	3/	4
Kentucky	58,000	11,102	152	124	3/	[illegible]
Tennessee	44,847	9,220	65	94	3/	1
Appalachian	219,355	40,282	749	974	3/	2
South Carolina	21,000	5,700	88	150	3/	3
Georgia	39,000	13,000	220	387	1	3
Florida	13,487	12,500	1,215	3,864	9	31
Alabama	30,500	9,900	75	108	3/	1
Southeast	103,987	41,100	1,598	4,509	2	11
Mississippi	34,000	11,350	294	727	1	6
Arkansas	27,342	11,300	301	657	1	6
Louisiana	17,750	8,059	240	706	1	9
Delta States	79,092	30,709	835	2,090	1	7
Oklahoma	37,472	27,900	35	99	3/	3/
Texas	78,000	118,229	455	4,434	1	4
Southern Plains	115,472	146,129	490	4,533	3/	3
25 States	636,760	284,524	4,850	12,875	1	5

1/ All farms having gross sales of $2,500 or more. Estimates for 1968 projected from 1964 census of agriculture.

2/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location. Number of corporations not strictly comparable with census number of farms.

3/ Less than 0.5 percent.

Table 2.--Corporations: Number and distribution, by type, 25 States, 1968 1/

State and region	Type of corporation: Individual	Type of corporation: Family	Type of corporation: Other	Type of corporation: Unclassified 2/	Type of corporation: Total	Distribution by type 3/: Individual	Distribution by type 3/: Family	Distribution by type 3/: Other
	Number					Percent		
Maine	7	45	4	1	57	13	80	7
New Hampshire	1	12	1	--	14	7	86	7
Vermont	6	28	4	4	42	16	74	10
Massachusetts	11	94	10	5	120	10	81	9
Rhode Island	--	13	1	--	14	--	93	7
Connecticut	9	89	18	1	117	8	77	15
New York	39	177	42	13	271	15	69	16
New Jersey	7	78	11	5	101	7	81	12
Pennsylvania	22	136	54	16	228	10	64	26
Delaware	8	35	4	3	50	17	74	9
Maryland	23	87	34	20	164	16	60	24
Northeast	133	794	183	68	1,178	12	72	16
Virginia	38	159	43	18	258	16	66	18
West Virginia	8	31	9	4	52	17	64	19
North Carolina	32	143	44	4	223	15	65	20
Kentucky	25	69	47	10	151	18	49	33
Tennessee	17	29	8	11	65	31	54	15
Appalachian	120	431	151	47	749	17	61	22
South Carolina	8	57	23	--	88	9	65	26
Georgia	29	146	38	7	220	14	68	18
Florida	203	673	284	55	1,215	18	58	24
Alabama	16	41	17	1	75	22	55	23
Southeast	256	917	362	63	1,598	17	60	23
Mississippi	67	175	46	6	294	23	61	16
Arkansas	25	197	62	17	301	9	69	22
Louisiana	31	146	48	15	240	14	65	21
Delta States	123	518	156	38	835	15	65	20
Oklahoma	6	19	6	4	35	20	61	19
Texas	68	268	79	40	455	16	65	19
Southern Plains	74	287	85	44	490	17	64	19
25 States	706	2,947	937	260	4,850	15	64	21

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location.
2/ Type of corporation was not reported.
3/ Excluding unclassified.

Table 3.--Corporations having agricultural operations: Acres operated and distribution by type, 25 States, 1968

State and region	Type of corporation: Individual	Type of corporation: Family	Type of corporation: Other	Type of corporation: Unclassified 1/	Type of corporation: Total	Distribution by type 2/: Individual	Distribution by type 2/: Family	Distribution by type 2/: Other
	1,000 acres					Percent		
Maine	2	85	3	2	92	2	94	4
New Hampshire	1	4	1	--	6	24	60	16
Vermont	2	18	2	3	25	11	81	8
Massachusetts	5	36	24	3	68	8	55	37
Rhode Island	--	5	1	--	6	--	91	9
Connecticut	8	35	16	1	60	13	60	27
New York	24	120	22	8	174	15	72	13
New Jersey	4	28	13	2	47	9	62	29
Pennsylvania	8	67	32	8	115	7	63	30
Delaware	4	29	4	2	39	11	78	11
Maryland	15	73	32	17	137	12	61	27
Northeast	73	500	150	46	769	10	69	21
Virginia	43	143	123	22	331	14	46	40
West Virginia	11	25	3	3	42	28	63	9
North Carolina	31	198	147	7	383	8	53	39
Kentucky	23	64	29	8	124	20	55	25
Tennessee	13	56	9	16	94	17	71	12
Appalachian	121	486	311	56	974	13	53	34
South Carolina	29	87	35	--	150	19	58	23
Georgia	37	262	76	12	387	10	70	20
Florida	238	2,257	1,194	175	3,864	7	61	32
Alabama	30	66	11	1	108	28	62	10
Southeast	334	2,672	1,316	188	4,509	8	62	30
Mississippi	121	434	157	15	727	17	61	22
Arkansas	58	440	122	37	657	9	71	20
Louisiana	149	351	162	44	706	23	53	24
Delta States	328	1,225	441	96	2,090	17	61	22
Oklahoma	18	47	22	12	99	20	54	26
Texas	431	2,783	830	390	4,434	11	69	20
Southern Plains	449	2,830	852	402	4,533	11	68	21
25 States	1,305	7,713	3,070	788	12,875	11	64	25

1/ Type of corporation was not determined. Acres per unit assumed to be same as for all corporations for which type was reported.

2/ Excluding unclassified.

Table 4.--Acres per farm: Commercial farms, and corporate farms by type, 25 States, 1968 1/

State and region	Commercial farms	Type of corporate farm			
		Individual	Family	Other	All types
	Average acres				
Maine	303	289	1,898	853	1,622
New Hampshire	269	1,456	308	1,000	450
Vermont	374	407	644	425	583
Massachusetts	148	455	387	2,419	557
Rhode Island	114	---	390	475	397
Connecticut	150	851	393	895	508
New York	255	627	676	518	644
New Jersey	143	547	362	1,198	473
Pennsylvania	181	348	492	598	504
Delaware	230	498	818	1,033	777
Maryland	224	636	842	955	835
Northeast	221	550	630	824	663
Virginia	254	1,131	897	2,851	1,253
West Virginia	365	1,361	798	382	836
North Carolina	128	960	1,383	3,345	1,676
Kentucky	191	917	922	625	822
Tennessee	205	776	1,925	1,165	1,447
Appalachian	184	1,006	1,124	2,066	1,207
South Carolina	271	3,666	1,521	1,[illegible]33	1,721
Georgia	333	1,278	1,792	2,012	1,759
Florida	927	1,174	3,354	4,202	3,185
Alabama	325	1,877	1,606	620	1,438
Southeast	395	1,308	2,913	3,635	2,815
Mississippi	334	1,811	2,479	3,402	2,470
Arkansas	413	2,337	2,233	1,966	2,186
Louisiana	454	4,811	2,403	3,376	2,937
Delta States	388	2,674	2,364	2,823	2,527
Oklahoma	745	2,985	2,496	3,723	2,877
Texas	1,[illegible]16	6,340	10,385	10,509	9,744
Southern Plains	1,265	6,068	9,863	10,030	9,120
25 States	447	1,851	2,617	3,276	2,655

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location. Average acreages computed from unrounded data.

Table 3.--Distribution of corporations by extent of business interests, 25 States, 1968

State and region	Farming only	Farming plus: Agri-business 1/	Farming plus: Nonagri-business 2/	Farming plus: Combination 3/	Total
	Percent				
Maine	48	38	9	5	100
New Hampshire	62	15	15	8	100
Vermont	40	37	18	5	100
Massachusetts	71	15	11	3	100
Rhode Island	50	29	14	7	100
Connecticut	64	19	11	6	100
New York	49	22	24	5	100
New Jersey	61	23	11	5	100
Pennsylvania	37	23	34	6	100
Delaware	16	53	22	9	100
Maryland	61	16	21	2	100
Northeast	52	23	20	5	100
Virginia	59	12	25	4	100
West Virginia	68	7	23	2	100
North Carolina	29	29	32	10	100
Kentucky	33	16	49	2	100
Tennessee	25	34	31	10	100
Appalachian	43	20	31	6	100
South Carolina	48	28	16	8	100
Georgia	45	20	24	11	100
Florida	66	16	15	3	100
Alabama	40	22	35	3	100
Southeast	61	18	17	4	100
Mississippi	71	17	10	2	100
Arkansas	60	19	16	5	100
Louisiana	59	14	21	6	100
Delta States	63	17	16	4	100
Oklahoma	52	7	24	17	100
Texas	56	20	20	4	100
Southern Plains	55	20	20	5	100
25 States	56	19	20	5	100

1/ Farm supplies; marketing or processing of farm products.
2/ Business activities unrelated to production or marketing of farm products.
3/ Both agribusiness and nonagribusiness.

Table 6.--Distribution of corporations according to major and secondary business activities, 25 States, 1968 1/

State and region	Farming major activity			Farming secondary activity			Total
				Farming ranked			
	Farming only	With other activity	Total	2nd	3rd or lower	Total	
	Percent						
Maine	48	17	65	29	6	35	100
New Hampshire	62	—	62	31	7	38	100
Vermont	40	9	49	51	—	51	100
Massachusetts	71	8	79	19	2	21	100
Rhode Island	50	29	79	21	—	21	100
Connecticut	64	12	76	19	5	24	100
New York	49	9	58	38	4	42	100
New Jersey	61	10	71	25	4	29	100
Pennsylvania	37	10	47	47	6	53	100
Delaware	16	—	16	68	16	84	100
Maryland	61	3	64	31	5	36	100
Northeast	52	9	61	34	5	39	100
Virginia	59	9	68	31	1	32	100
West Virginia	68	2	70	27	3	30	100
North Carolina	29	14	43	44	13	57	100
Kentucky	33	7	40	56	4	60	100
Tennessee	25	11	36	54	10	64	100
Appalachian	43	10	53	41	6	47	100
South Carolina	48	12	60	30	10	40	100
Georgia	45	13	58	35	7	42	100
Florida	66	10	76	23	1	24	100
Alabama	40	16	56	42	2	44	100
Southeast	61	10	71	25	4	29	100
Mississippi	71	7	78	20	2	22	100
Arkansas	60	16	76	20	4	24	100
Louisiana	59	16	75	22	3	25	100
Delta States	63	13	76	21	3	24	100
Oklahoma	52	17	69	21	10	31	100
Texas	56	8	64	30	6	36	100
Southern Plains	55	9	64	31	5	36	100
25 States	56	10	66	29	5	34	100

1/ Gross sales was used as a basis for relative rankings.

Table 7.--Distribution of corporations, by type of corporation and extent of business interests, selected regions, 1968

Region and type of corporation	Farming only	Farming plus: Agri-business 1/	Nonagri-business 2/	Combination 3/
	-----------	-----------	Percent	-----------
Northeast				
Individual	9	12	21	13
Family	81	69	54	65
Other	10	19	25	22
Total	100	100	100	100
Appalachian				
Individual	13	12	25	15
Family	69	64	50	75
Other	18	24	25	10
Total	100	100	100	100
Southeast excluding Florida				
Individual	9	11	24	16
Family	70	63	59	68
Other	21	26	17	16
Total	100	100	100	100
Florida				
Individual	18	11	24	16
Family	64	52	59	68
Other	18	37	17	16
Total	100	100	100	100
Delta States				
Individual	5	10	19	14
Family	80	59	50	72
Other	15	31	31	14
Total	100	100	100	100
Southern Plains				
Individual	12	18	21	27
Family	72	59	53	60
Other	16	23	26	13
Total	100	100	100	100
25 States				
Individual	13	13	23	16
Family	71	61	52	63
Other	16	26	25	21
Total	100	100	100	100

1/ Farm supplies; marketing or processing of farm products.
2/ Business activities unrelated to production or marketing of farm products.
3/ Both agribusiness and nonagribusiness.

Table 8.--Acres operated per corporation by extent of business interests, 25 States, 1968 1/

State and region	Farming only	Farming plus		
		Agri-business 2/	Nonagri-business 3/	Combination 4/
	Average acres			
Maine	565	322	12,792	225
New Hampshire	439	255	763	300
Vermont	335	341	820	414
Massachusetts	601	288	636	257
Rhode Island	423	130	584	366
Connecticut	388	717	786	611
New York	687	397	494	1,274
New Jersey	530	419	374	451
Pennsylvania	439	669	422	738
Delaware	627	985	366	488
Maryland	969	807	380	573
Northeast	607	629	799	702
Virginia	1,082	1,392	1,519	1,892
West Virginia	605	304	1,419	3,556
North Carolina	1,272	1,349	2,316	2,036
Kentucky	760	571	970	780
Tennessee	832	1,278	2,166	1,292
Appalachian	1,018	1,211	1,651	1,878
South Carolina	1,349	1,197	4,090	1,120
Georgia	1,657	1,559	2,193	1,826
Florida	1,803	3,770	6,614	14,412
Alabama	1,907	1,173	885	3,199
Southeast	1,771	3,016	5,037	7,762
Mississippi	2,086	3,085	2,568	10,315
Arkansas	1,913	1,985	2,140	6,104
Louisiana	2,102	4,101	4,086	3,699
Delta States	2,032	2,926	3,020	5,864
Oklahoma	1,751	635	4,760	4,080
Texas	8,862	3,653	7,993	60,955
Southern Plains	8,432	3,579	7,723	48,981
25 States	2,075	2,084	3,152	8,383

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location.

2/ Farm supplies; marketing or processing of farm products.

3/ Business activities unrelated to production or marketing of farm products.

4/ Both agribusiness and nonagribusiness.

Table 9.--Distribution of corporations by gross sales of farm products, selected regions, 1967 1/

Gross sales of farm products	Northeast	Appalachian	Southeast 2/	Florida	Delta	Southern Plains	25 States
	Percent						
Less than $20,000..	17	35	23	26	11	29	22
$20,000-$39,999....	13	15	13	16	11	10	13
$40,000-$99,999....	28	21	22	20	24	28	24
$100,000-$199,999..	18	14	17	14	28	14	18
$200,000-$499,999..	14	8	14	13	17	9	13
$500,000 or more...	10	7	11	11	9	10	10
Total............	100	100	100	100	100	100	100
Number reported....	909	623	345	1,009	726	363	3,973

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location.

2/ Excluding Florida.

Table 10.--Distribution of corporations by gross sales of farm products according to extent of business interests, selected regions, 1967 1/

Region and gross sales of farm products	Farming only	Farming plus: Agri-business 2/	Farming plus: Nonagri-business 3/	Farming plus: Combination 4/
	------------------------	----Percent----	------------------------	
Northeast				
Less than $40,000	18	30	54	37
$40,000-$99,999	35	22	22	22
$100,000-$199,999	20	20	13	13
$200,000-$499,999	17	14	7	15
$500,000 or more	10	14	4	13
Total	100	100	100	100
Number reported	469	208	184	48
Appalachian				
Less than $40,000	43	36	69	40
$40,000-$99,999	26	21	14	22
$100,000-$199,999	19	13	8	15
$200,000-$499,999	8	15	4	10
$500,000 or more	4	15	5	13
Total	100	100	100	100
Number reported	263	124	196	40
Southeast excluding Florida				
Less than $40,000	28	28	59	29
$40,000-$99,999	25	13	25	23
$100,000-$199,999	20	17	6	32
$200,000-$499,999	19	17	5	13
$500,000 or more	8	25	5	3
Total	100	100	100	100
Number reported	150	76	88	31
Florida				
Less than $40,000	45	26	46	14
$40,000-$99,999	22	14	23	11
$100,000-$199,999	15	18	9	11
$200,000-$499,999	12	16	13	29
$500,000 or more	6	26	9	35
Total	100	100	100	100
Number reported	672	160	149	28

Table 10.--Distribution of corporations by gross sales of farm products according to extent of business interests, selected regions, 1967 1/ (Continued)

Region and gross sales of farm products	Farming only	Farming plus:		
		Agri- business 2/	Nonagri- business 3/	Combination 4/
	----------	----------	Percent	----------
Delta States				
Less than $40,000	17	18	48	15
$40,000-$99,999	28	15	23	6
$100,000-$199,999	34	18	18	15
$200,000-$499,999	18	22	6	21
$500,000 or more	3	27	5	43
Total	100	100	100	100
Number reported	457	125	111	33
Southern Plains				
Less than $40,000	36	25	57	29
$40,000-$99,999	37	27	20	6
$100,000-$199,999	14	17	9	18
$200,000-$499,999	7	13	9	--
$500,000 or more	6	18	5	47
Total	100	100	100	100
Number reported	192	77	77	17
25 States				
Less than $40,000	31	29	56	29
$40,000-$99,999	29	19	21	17
$100,000-$199,999	20	17	11	17
$200,000-$499,999	14	16	7	15
$500,000 or more	6	19	5	22
Total	100	100	100	100
Number reported	2,204	769	795	197

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location.

2/ Farm supplies; marketing or processing of farm products.

3/ Business activities unrelated to production or marketing of farm products.

4/ Both agribusiness and nonagribusiness.

Table 11.--Distribution of corporations with gross sales of $100,000 or more according to type of corporation, selected regions, 1967 1/

Gross sales of farm products and type of corporation	Region							Corporations reported
	Northeast	Appalachian	Southeast 2/	Florida	Delta	Southern Plains	25 States	
	Percent							Number
$100,000-$199,999								
Individual......	10	18	10	11	12	6	10	61
Family..........	80	68	71	68	73	76	71	420
Other...........	10	14	19	21	15	18	19	110
Total.........	100	100	100	100	100	100	100	591
$200,000-$499,999								
Individual......	7	16	14	13	11	10	10	46
Family..........	76	66	55	60	64	67	63	278
Other...........	17	18	31	27	25	23	27	118
Total.........	100	100	100	100	100	100	100	442
$500,000 or more								
Individual......	5	7	14	9	14	18	9	34
Family..........	61	60	56	52	46	56	53	188
Other...........	34	33	30	39	40	26	38	135
Total.........	100	100	100	100	100	100	100	357

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location.

2/ Excluding Florida.

Table 12.--Number of corporations reporting specified crops, by selected regions, 1967 1/

Crops	North-east	Appala-chian	South-east 2/	Florida	Delta	Southern Plains	25 States
	Number						
Corn	415	362	186	66	96	25	1,150
Wheat	202	126	52	5	205	94	684
Other grain	221	156	99	11	65	187	739
Hay	453	314	153	65	156	115	1,256
Soybeans	71	134	102	7	479	16	809
Potatoes	88	11	---	25	5	2	131
Sugar beets	17	---	---	--	---	4	21
Sugar cane	---	---	---	61	90	---	151
Tobacco	32	220	48	20	---	---	320
Cotton	---	73	108	2	376	115	674
Rice	---	---	1	--	117	15	133
Peanuts	---	43	71	21	---	14	149
Cranberries	40	---	---	--	---	---	40
Apples	66	30	5	--	---	1	102
Peaches	30	14	26	6	1	2	79
Citrus	---	---	---	557	---	---	557
Fruits, others and not specified	66	13	32	26	28	8	173
Tomatoes	22	8	2	11	2	1	46
Vegetables, others and not specified	97	19	11	50	8	16	201
Green house and nursery	46	8	5	42	1	2	104

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location. Numbers shown should not be compared directly with the total number of corporations because of incomplete reporting.

2/ Excluding Florida.

Table 13.--Average acreages of specific crops per corporation, selected regions, 1967 1/

Crops	North-east	Appala-chian	South-east 2/	Florida	Delta	Southern Plains	25 States
	Acres						
Corn	177	171	252	316	100	556	197
Wheat	66	70	104	450	334	432	203
Other grains	80	81	188	176	295	498	221
Hay	152	122	157	167	201	248	161
Soybeans	219	296	270	561	1,054	210	735
Potatoes	297	355	---	1,140	94	360	456
Sugar beets	218	---	---	---	---	131	202
Sugar cane	---	---	---	2,641	1,125	---	1,738
Tobacco	274	16	23	68	---	---	46
Cotton	---	121	130	54	431	289	324
Rice	---	---	40	---	403	1,105	477
Peanuts	---	114	130	81	---	256	131
Cranberries	899	---	---	---	---	---	899
Apples	257	332	244	---	---	30	276
Peaches	147	131	353	169	120	100	212
Citrus	---	---	---	364	---	---	364
Fruits, other and not specified	1,244	258	152	389	414	237	659
Tomatoes	113	562	120	349	51	50	243
Vegetables, other and not specified	482	344	54	921	87	340	528
Green house and nursery	229	859	131	143	300	535	244
	1,000 acres						
Total acres of all crops reported	450	223	167	511	961	246	2,558

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location.

2/ Excluding Florida.

Table 14.--Number of corporations reporting specified classes of livestock, selected regions, 1967 1/

Livestock	Northeast	Appalachian	Southeast 2/	Florida	Delta	Southern Plains	25 States
	Number						
Cattle fed	91	130	65	28	55	59	428
Yearling cattle	164	135	95	87	106	78	665
Beef cows	85	254	166	233	265	182	1,185
Milk cows	295	88	35	81	18	14	531
Market hogs sold	31	63	39	8	20	17	178
Sows farrowed	9	49	38	9	15	12	132
Sheep	21	23	---	1	4	21	70
Horses	30	26	6	11	11	7	92
Broilers sold	39	15	15	1	22	2	94
Laying hens	85	46	60	18	34	14	237
Turkeys sold	5	19	6	—	4	9	43

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location. Numbers shown should not be compared directly with the total number of corporations because of incomplete reporting.

2/ Excluding Florida.

Table 15.--Average number of head of specified livestock per corporation, selected regions, 1967 1/

Livestock	Northeast	Appalachian	Southeast 2/	Florida	Delta	Southern Plains	25 State total
	Head						
Cattle fed	193	257	1,329	1,524	673	7,381	1,525
Yearling cattle	66	192	136	254	201	403	187
Beef cows	105	178	280	661	310	415	348
Milk cows	131	148	158	854	188	187	249
Market hogs sold	312	758	1,003	601	1,128	3,093	992
Sows farrowed	68	78	87	37	70	599	124
Sheep	85	467	---	300	112	2,778	1,023
Horses	55	46	11	65	17	9	53
	1,000 head						
Broilers	653	1,261	1,899	2,000	1,973	6,020	1,386
Laying hens	75	48	90	107	170	137	92
Turkeys	14	226	108	---	90	256	124

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location.

2/ Excluding Florida.

Table 16.--Distribution of corporations by approximate year they began farming as a corporation, selected regions

Type of corporation and year	Northeast	Appalachian	Southeast 1/	Florida	Delta	Southern Plains	25 States
	Percent						
Individual							
Before 1960	53	51	55	56	36	34	49
1960-66	39	43	35	37	52	57	43
1967-68	8	6	10	7	12	9	8
Total	100	100	100	100	100	100	100
Family							
Before 1960	60	50	52	52	42	35	51
1960-66	35	40	42	41	46	53	41
1967-68	5	10	6	7	12	12	8
Total	100	100	100	100	100	100	100
Other							
Before 1960	46	44	45	47	47	28	44
1960-66	46	49	39	47	37	51	45
1967-68	8	7	16	6	16	21	11
Total	100	100	100	100	100	100	100
All corporations							
Before 1960	57	49	50	52	42	33	49
1960-66	37	42	41	41	45	53	42
1967-68	6	9	9	7	13	14	9
Total	100	100	100	100	100	100	100

1/ Excluding Florida.

Table 17.--Distribution of corporations, by tenure of land operated and by type, selected regions, 1968

Region and tenure	Type of corporation			
	Individual	Family	Other	All corporations
	Percent			
Northeast				
Owned only	80	75	77	76
Rented only	3	1	6	2
Part owned, part rented	17	24	17	22
Total	100	100	100	100
Appalachian				
Owned only	77	78	81	78
Rented only	6	3	5	4
Part owned, part rented	17	19	14	18
Total	100	100	100	100
Southeast 1/				
Owned only	92	77	83	80
Rented only	--	4	6	4
Part owned, part rented	8	19	11	16
Total	100	100	100	100
Florida				
Owned only	90	87	82	87
Rented only	5	5	10	6
Part owned, part rented	5	8	8	7
Total	100	100	100	100
Delta States				
Owned only	84	66	71	70
Rented only	6	10	9	9
Part owned, part rented	10	24	20	21
Total	100	100	100	100
Southern Plains				
Owned only	82	63	72	68
Rented only	7	14	15	13
Part owned, part rented	11	23	13	19
Total	100	100	100	100
25 State Total				
Owned only	84	76	78	78
Rented only	5	5	9	6
Part owned, part rented	11	19	13	16
Total	100	100	100	100

1/ Excluding Florida.

Table 18.--Average acres operated per corporation, by tenure of land operated and by type, selected regions, 1968 1/

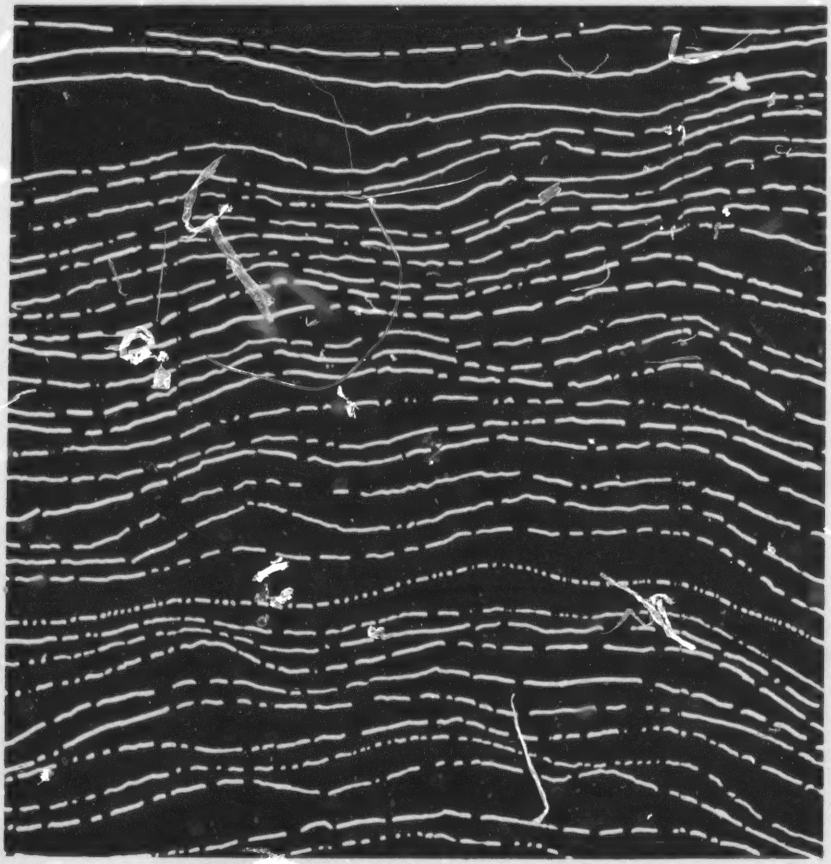
Regions and tenure	Type of corporation			
	Individual	Family	Other	All corporations
	-----------	-----------	Acres	-----------
Northeast				
Owned only	457	476	734	514
Rented only	660	1,035	1,585	1,217
Part owned, part rented	544	620	631	614
Appalachian				
Owned only	981	982	2,169	1,211
Rented only	1,700	1,005	2,293	1,477
Part owned, part rented	1,815	1,322	2,980	1,634
Southeast 2/				
Owned only	1,346	1,745	1,359	1,601
Rented only	---	722	536	660
Part owned, part rented	1,973	1,476	4,458	911
Florida				
Owned only	968	2,982	3,910	2,821
Rented only	447	1,774	845	1,210
Part owned, part rented	4,610	9,126	10,939	8,987
Delta States				
Owned only	2,700	2,331	2,065	2,351
Rented only	4,571	1,733	2,381	2,131
Part owned, part rented	1,760	1,476	5,095	2,183
Southern Plains				
Owned only	4,649	12,640	2,590	9,222
Rented only	4,554	5,236	36,464	11,699
Part owned, part rented	1,715	4,147	1,944	3,662
25 State Total				
Owned only	1,535	2,605	2,769	2,464
Rented only	2,228	2,458	6,648	3,652
Part owned, part rented	1,463	1,940	3,580	2,148

1/ County unit basis; i.e., corporations having operations in more than one county or State were counted at each such location. Average acreages computed from unrounded data.

2/ Excluding Florida.

3170

OUR 31,000 LARGEST FARMS



AGRICULTURAL ECONOMIC REPORT No. 175
ECONOMIC RESEARCH SERVICE
U.S. DEPARTMENT OF AGRICULTURE

UNITED STATES DEPARTMENT OF AGRICULTURE
Economic Research Service
Farm Production Economics Division

ERRATA

OUR 31,000 LARGEST FARMS, U.S. Dept. Agr., Agr. Econ. Rpt. No. 175, March 1970.

Page 14, table 8, unit column, opposite vegetables--
change line 23 to "Acres harvested" and
change line 24 to "Sales in dollars."

Page 16, table 9, unit column, opposite vegetables--
change line 22 to "Sales in dollars" and
change line 23 to "Acres harvested."

Page 17, table 10, column 1, row 2, opposite tobacco--
change 31.4 to 62.9.

Page 23, paragraph 1, lines 7 and 8, change percentages as follows:

81 percent to 79 percent
64 percent to 61 percent
69 percent to 64 percent

Page 35, paragraph 2, line 2, should read--

"...operators with less education..."

PREFACE

This report is based mainly on information shown in a special tabulation of 1964 Census of Agriculture data for farms with annual sales of $100,000 or more. The tabulation was obtained from the Bureau of the Census, Department of Commerce.

This tabulation permits us, for the first time, to present comprehensive national and regional information on the largest farms, by sales group, including farms with annual sales of $1 million or more. These are the latest and only data available nationwide on the largest farms. The data were not available until 1969, and no new data are expected for several years to come.

Administrators, legislators, and the general public have expressed widespread interest and concern with respect to large-scale farms. This report will provide information that should help put issues concerning these farms into proper perspective, especially as concerns their importance in the future organizational structure of agriculture.

Specific acknowledgement of their valuable cooperation is made to J. Thomas Breen, Chief, and to Arnold L. Bollenbacher and John A. Blackledge, Statisticians, Agriculture Division, the Bureau of the Census. Acknowledgement is also due to Ella S. Wells, statistical assistant, USDA, whose competent statistical work served as the basis for this study.

Note: In this report, size of farm is delineated as follows:

	Gross sales
The largest	$100,000 or more
Large	$20,000 to $99,999
Medium	$5,000 to $19,999
Small	Less than $5,000

Within the "largest" farm size, farms with sales of $1 million or more are referred to as "Top-Scale."

Other sources frequently refer to the "largest" farms (sales of $100,000 or more) as "large-scale" farming.

Washington, D.C. 20250 March 1970

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SUMMARY

In 1964, 31,401 farms with product sales of $100,000 or more accounted for 24 percent of all farm product sales. Of these largest U.S. farms, 919 had sales of $1 million or more, or 7 percent of all sales. In 1959, only 19,979 farms had sales of $100,000 or more, and 408 farms had sales of $1 million or more--accounting for 16 percent and 4 percent of all farm sales.

The importance of these largest farms is especially pronounced in the West. In 1964, while farms with product sales of $100,000 or more accounted for 12 percent of all farm product sales in the North and 24 percent in the South, they accounted for 53 percent in the West (see map on page iv). The concentration of a relatively small number of large farms in the West is evidenced by the fact that 524 farms with product sales of $1 million or more--0.2 percent of all farms in the West--accounted for more than a fifth of all farm product sales in that part of the country. Farms of this size accounted for 5 percent of all farm product sales in the South and only 2 percent in the North.

Poultry and other meat-producing farms accounted for 42 percent of all farms with $100,000 or more of sales and for 47 percent of their marketings. Within this sales group, meat-producing farms accounted for 54 percent of all farms with sales of $1 million or more, and 59 percent of their marketings.

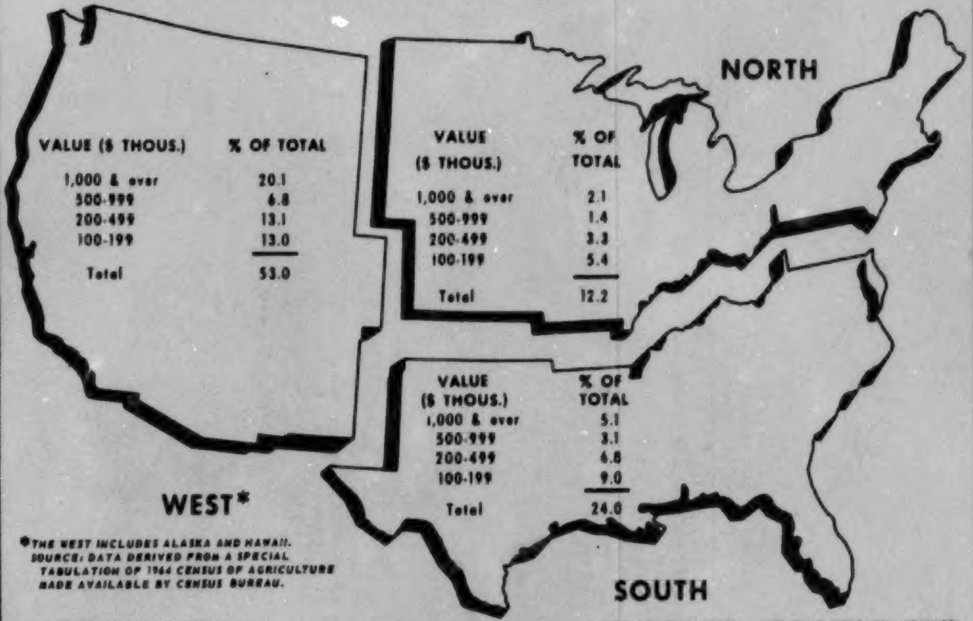
Farms with sales of $100,000 or more had 121 million acres of land--11 percent of total farmland. This acreage was mostly in grazing land--66 percent--followed by 24 percent in cropland and 7 percent in woodland.

Operators on the largest farms are about the same age as those on other commercial farms, but they have a higher educational attainment.

Farms with sales of $100,000 or more are predominantly operated with hired labor. However, in some parts of the country, such as in the Corn Belt and the Lake States regions, many of these farms are family-operated. In California in 1964, only 4 percent of all sales by these largest farms came from family-operated units, but in Iowa this proportion was 45 percent.

These largest farms have a greater technical efficiency than smaller farms, as measured by ratios such as acres harvested per machine, yield per acre, and output per animal. However, the ratio, purchased inputs per unit of output, for the largest farms is much greater than for smaller farms.

MARKETINGS BY THE LARGEST FARMS AS A PERCENTAGE OF TOTAL FARM SALES, BY GEOGRAPHIC DIVISIONS, 1964



WEST*

VALUE ($ THOUS.)	% OF TOTAL
1,000 & over	20.1
500-999	6.8
200-499	13.1
100-199	13.0
Total	53.0

NORTH

VALUE ($ THOUS.)	% OF TOTAL
1,000 & over	2.1
500-999	1.4
200-499	3.3
100-199	5.4
Total	12.2

SOUTH

VALUE ($ THOUS.)	% OF TOTAL
1,000 & over	5.1
500-999	3.1
200-499	6.8
100-199	9.0
Total	24.0

*THE WEST INCLUDES ALASKA AND HAWAII.
SOURCE: DATA DERIVED FROM A SPECIAL TABULATION OF 1964 CENSUS OF AGRICULTURE MADE AVAILABLE BY CENSUS BUREAU.

U.S. DEPARTMENT OF AGRICULTURE NEG. ERS 7094-69 (11) ECONOMIC RESEARCH SERVICE

OUR 31,000 LARGEST FARMS

by

Radoje Nikolitch, Agricultural Economist
Farm Production Economics Division

INTRODUCTION

U.S. farms with annual sales of $100,000 or more of farm products had average marketings of $272,000 in 1964. In that year, more than 31,000 farms were in that size class. These farms are small businesses compared with firms in most other commodity-producing industries. However, they are the largest in the farm economy.

The aim of this report is to determine the relative position and recent trends of the largest farms in American agriculture. More specifically, the report will describe their types of enterprise, their production resources, the type of land tenure under which the farms are operated, the farm operators, the portion of farms that are family-operated, and how efficiently the largest farms use their production resources. This analysis, it is hoped, will contribute to a better understanding of the largest farms in U.S. agriculture and may also help to answer questions often asked about large-scale farming. For example, what is the real problem, if any, presented by big farms? Do they tend to dominate the farming industry? Is large-scale farming necessary on certain types of farms for economic efficiency?

RELATIVE SALES POSITION OF THE LARGEST FARMS

In 1959, 19,979 farms with sales of $100,000 or more accounted for 0.5 percent of all farms and more than 16 percent of total farm marketings. By 1964 the number of such farms had increased considerably. In that year, 31,401 farms--about 1 percent of all farms--had sales of $100,000 or more and accounted for almost a fourth of total farm marketings. The number of farms and value of sales expanded for all sales classes. The number of farms with sales of $1 million or more increased from 408 in 1959 to 919 in 1964, accounting for 4.2 percent of all farm products sold in 1959, compared with 6.8 percent in 1964 (table 1). The importance of these farms varies greatly by business size of farm (explained below) and by region.

Business Size

On the basis of gross sales, all Census-reported farms were classified into four size groups for this report. The first group includes the largest farms, with annual sales of $100,000 or more. The second group consists of large farms with annual sales of $20,000 to $99,999.

Table 1.--Number and sales of farms with sales of $100,000 or more, and their percentage of total farm sales, by specified size, 1959 and 1964

Size of farm in value of sales	1959			1964			Sales as a percentage of total farm sales	
	Farms	Value of sales		Farms	Value of sales			
		Total	Per farm		Total	Per farm	1959	1964
	Number	Billion dollars 1/	1,000 dollars 2/	Number	Billion dollars	1,000 dollars	Percent	Percent
$1,000,000 or more......	408	1.3	3,186	919	2.4	2,576	4.2	6.8
$500,000-$999,999.......	800	.5	651	1,574	1.1	678	1.7	3.1
$200,000-$499,999.......	4,570	1.3	280	7,760	2.2	290	4.2	6.4
$100,000-$199,999.......	14,201	1.9	131	21,148	2.8	135	6.2	8.0
Total..............	19,979	5.0	249	31,401	8.5	272	16.3	24.3

1/ Estimated by multiplying average sales by number of farms.
2/ Estimated by comparing sales distributions in 1959 and 1964.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

The third group is composed of medium-sized farms, with annual sales of $5,000 to $19,999. The fourth group, small farms, includes all farms with sales of less than $5,000. These farms are small commercial units that provide inadequate employment for farm operators and income for their families or they are part-time and part-retirement units.1/

Changes in size in these four groups from 1959 to 1964 indicate a continuing trend toward fewer and larger commercial farms. Medium- and large-sized farms, in 1964, still accounted for the largest part of farm sales (68 percent), current farm operating expenses (62 percent), and farm real estate value (65 percent) (table 2).

Four additional observations are relevant for understanding the measurement of farm size by gross sales and the economic importance of farms in different size sectors.

Measurements Between Time Periods

Some economists have indicated problems in using gross sales as a measure of size. For example, Mighell points out that "the usual comparisons of numbers of farms by economic classes between two periods in which there has been a general growth in size, seem to imply a faster rate of growth on the part of large farms than is actually the case. This is because a fixed set of sales classes cuts different sectors of the frequency distribution appropriate to each period." Using Lorenz curve analysis, he avoided the bias and found that gross sales per farm increased only slightly more in the higher percentiles.2/ The author of the present study is not a critic of gross sales as a measure of farm size.3/

Interfarm Trade of Farm Products

Increasing specialization among farmers, as is well known, is associated with a considerable increase in purchased inputs needed for farm production. What is not so often thought of is that this increasing specialization is associated also with an increasing degree of interfarm sales of farm products. That is, more and more farm products in their different processing stages are traded successively to different farms, mostly by dealers but also among farmers, before these products go to nonfarm markets. Thus, the amount of interfarm trade inflates considerably the reported value of gross sales by any group of farms, especially livestock farms. The extent of this inflation equals the cost of agricultural products paid to the farmer originally producing these products

---

1/ Part-time and part-retirement units are small noncommercial farms with less than $2,500 of farm products sold annually, and they are more residential than productive farms. Nonfarm occupations are the main source of income on part-time units, and various retirement benefits, as well as nonfarm occupations, are the main source of income on part-retirement units.

2/ Ronald L. Mighell, paper given at annual meeting, American Association of Agricultural Economists, University of Kentucky, Aug. 19-23, 1969.

3/ See this report, section on business size of farms, and Radoje Nikolitch and Dean E. McKee, "The Contribution of the Economic Classification of Farms to the Understanding of American Agriculture," Jour. of Farm Econ., Vol. 47, No. 5, Dec. 1965, pp. 1545-1554.

Table 2.--Number of farms, sales, selected farm production expenditures, and real estate value of farm, and as a percentage of all farms, by size of farm, 1959 and 1964

Size of farm 1/	Number of farms 2/		Sales		Selected expenditures 3/		Real estate value of farm	
	1959	1964	1959	1964	1959	1964	1959	1964
	Thousands	Thousands	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars	Million dollars
The largest	20	31	4,981	8,539	2,990	5,103	11,136	19,470
Large	292	371	10,319	13,588	5,321	6,344	31,074	50,503
Medium	1,137	972	11,428	10,267	4,963	4,271	49,552	52,733
Small 4/	2,256	1,782	3,789	2,754	1,953	1,581	31,860	35,395
Total	3,705	3,156	30,517	35,148	15,227	17,499	123,622	158,101
	Percentage of total for all farms							
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
The largest	0.5	1.0	16.3	24.3	19.6	29.2	9.0	12.3
Large	7.9	11.7	33.8	38.7	35.0	37.4	25.1	31.9
Medium	30.7	30.8	37.5	29.2	32.6	24.4	40.1	33.4
Small 4/	60.9	56.5	12.4	7.8	12.8	9.0	25.8	22.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Farm sizes are measured as follows: The largest--sales of $100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

2/ Indian reservations, institutional and other special farms not included.

3/ Feed, livestock, seed, fertilizer, petroleum products, machine hire, and hired labor.

4/ Operator households on these farms have, on the average, more nonfarm than farm income.

Source: Derived from the 1964 Census of Agriculture, Vol. II, Ch. 6.

and is reflected in gross sales of the farmer buying the products. Information is not available to determine exactly when and in what form farm products bought from other farms were resold to nonfarm markets. However, that part of the cost of such purchases paid to original producers on the selling farms provides a good indication of the proportion of interfarm sales included by farmers in reports of their total gross sales.

Interfarm trade increases with the size of farm. In 1964, such trade amounted to 27 percent of gross sales for farms with $100,000 or more of sales, and 36 percent for the 919 units with sales of $1 million or more (app. table 1).

Business Size of Farms

Interfarm trade can measure fairly accurately the overestimation of net agricultural production on farms as a group. The Nation's largest farms have produced considerably fewer farm products in a value-added sense than would usually be estimated from their gross sales. But this fact does not lessen their economic importance or business size in other respects. The importance and size of a business is determined by the value of its purchased and nonpurchased inputs, as well as by the value of its output. Buying and selling, as well as managing and working, are all important economic activities and together shape the size and the economic importance of a business. For example, in a value-added sense, cattle feedlots have relatively little net agricultural production. However, as "buyers" of steers and feed and as "sellers" of large numbers of fed cattle, they influence and greatly control the supply, marketings, and quality of these farm products in a given region, if not nationally. Thus, the value of net agricultural production of large feedlots (capacity of 1,000 head or more) was estimated to have been less than $99 million in 1964, or only 7.3 percent of the value of all cattle slaughtered in that year. But it was also estimated that such large feedlots accounted for a fifth of the total marketing of all cattle for slaughter (app. table 2).

Small Units

Units with less than $5,000 of sales are probably not the farms of the future. But they continue to be an important part of the farm economy. In 1964, 1.8 million small farms had sales under $5,000. Together, these farms sold $2.8 billion of farm products--8 percent of total nationwide sales--and accounted for 23 percent of total farm real estate value, and 9 percent of the main purchased farm production inputs.4/ More than 52 percent (about 6 million people) of the total farm population lived on these small units, where farming is mostly a part-time occupation and a secondary source of family livelihood.5/ However, in 1964, total value of marketings of small farms was higher than that for the few farms with sales of $1 million or more. The economic and social significance of these aspects of U.S. farming organization can hardly be overestimated.

4/ In 1964, small farms accounted for (by value) 8 percent of all corn produced, 9 percent of wheat, 25 percent of tobacco, 5 percent of milk sold, and 9 percent of all cattle and calves sold.

5/ 1964 Census of Agriculture, Vol. 2, Ch. 6, table 15, p. 641.

Regional Differences

The economic importance of large-scale farming differs greatly by geographic regions. Farms with sales of $100,000 or more accounted for 12 percent of total 1964 farm marketings in the North, 24 percent in the South, and 53 percent in the West. These differences are even more pronounced for farms with sales of $1 million or more. In 1964, such farms accounted for only 2 percent of total farm marketings in the North and 5 percent in the South. However, in the West, the 524 topscale farms accounted for 20 percent of all farm sales there (see map on inside cover and app. table 3).

A more complete regional analysis is possible for the Nation's largest farms when they are considered as one group. They are concentrated in the Pacific, Mountain, and Southern Plains regions and in each region have a different economic importance. In 1964, farms with sales of $100,000 or more accounted for 59 percent of all farm sales in the Pacific region and 35 to 40 percent in the Mountain and Southeast regions, but less than 10 percent in the Lake States, Corn Belt, and Appalachian regions (table 3).

The economic importance of these farms differs even more by individual States. California alone had 22 percent of the total number and 28 percent of the total sales.

Average 1964 sales were highest in Arizona, Florida, and California--$436,000, $406,000, and $342,000 respectively. They were only about $200,000 in all States in the Corn Belt and Lake States regions (app. table 4).

Measuring the economic importance of a farm business by the value of its sales, we can separate States into three broad categories: States where marketings by farms with sales of $100,000 or more accounted for more than 50 percent of the value of all farm products sold, States where this proportion ranged from more than 20 percent to 49.9 percent, and States where such marketings accounted for less than 20 percent of all farm products sold.

Arizona, California, and Florida are the States where the economic importance of large-scale farming is the greatest. In Arizona, farms with 1964 sales of $100,000 or more accounted for 13 percent of all the State's farms and 78 percent of all farm products sold. In both California and Florida, these largest units accounted for 7 percent of all farms in these States and for 69 percent of all sales. In both the Lake States and the Corn Belt regions, by contrast, the largest farms accounted for only about 5 percent of all farms and for less than 10 percent of all farm sales (fig. 1).

THE LARGEST FARMS BY TYPE OF ENTERPRISE

The economic importance of the largest farms varies also by type of farm, and within the types by region, source of sales, and specialization of production.

Cotton, poultry, and other meat-producing livestock farms (including ranches) account for most large-scale farms. In 1964, these types of farms constituted more than half of all the largest farms (53 percent)

Table 3.--Number and sales of farms with sales of $100,000 or more and their regional distribution, 1959 and 1964

Region	Number of farms		Sales		Percentage of total farm sales		Average sales per farm		1964 regional distribution	
	1959	1964	1959	1964	1959	1964	1959	1964	Number	Sales
	Number	Number	Million dollars	Million dollars	Percent	Percent	1,000 dollars	1,000 dollars	Percent	Percent
New England	384	862	75.0	192.9	12.3	26.9	195	224	2.7	2.3
Middle Atlantic	923	1,833	199.0	380.9	9.7	17.0	216	208	5.9	4.5
Lake States	541	1,228	99.2	246.0	3.5	7.6	183	200	3.9	2.9
Corn Belt	1,986	3,913	375.1	740.1	5.4	9.4	189	189	12.5	8.8
Northern Plains	1,486	2,271	381.6	656.7	11.6	17.7	257	289	7.3	7.8
Appalachian	591	1,183	115.4	249.5	5.0	9.1	195	211	3.7	3.0
Southeast	1,723	3,086	485.5	953.1	23.8	35.7	282	309	9.9	11.4
Delta States	1,516	2,854	276.2	549.7	18.0	28.0	182	193	9.1	6.5
Southern Plains	2,278	2,775	464.7	703.5	17.2	24.9	204	254	8.9	8.4
Mountain	2,306	2,992	667.9	1,001.0	28.4	39.5	290	335	9.6	12.0
Pacific	6,127	8,276	1,721.4	2,709.5	44.7	59.3	281	327	26.5	32.4
United States 1/	19,861	31,273	4,861.0	8,382.9	16.0	24.2	245	268	100.0	100.0

1/ Hawaii not included.

Source: 1964 Census of Agriculture, Vol. I, State table 23.

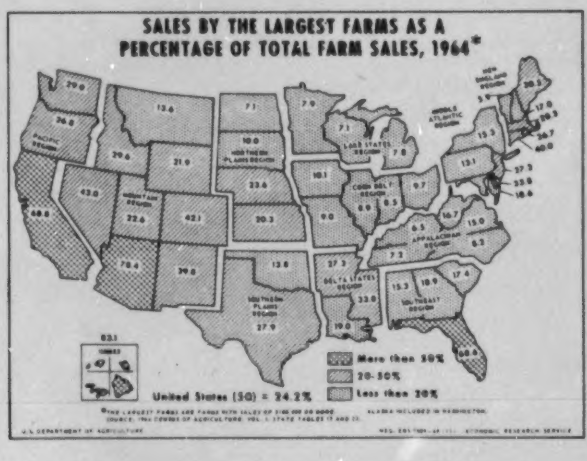

SALES BY THE LARGEST FARMS AS A PERCENTAGE OF TOTAL FARM SALES, 1964*
PACIFIC REGION
MOUNTAIN REGION
NORTHERN PLAINS REGION
LAKE STATES REGION
CORN BELT REGION
APPALACHIAN REGION
DELTA STATES REGION
SOUTHERN PLAINS REGION
SOUTHEAST REGION
MIDDLE ATLANTIC REGION
NEW ENGLAND REGION
29.0
26.8
68.8
29.6
43.0
22.6
13.6
21.0
42.1
78.4
39.8
7.1
10.0
23.6
20.3
13.8
27.9
7.9
10.1
9.0
27.3
19.0
7.1
7.8
8.9
8.5
9.7
6.5
16.7
15.0
7.2
8.3
33.8
15.3
18.9
17.4
60.6
15.3
13.1
30.5
17.8
20.3
24.7
40.0
27.3
33.8
18.6
83.1
More than 30%
20-30%
Less than 20%
United States (50) = 24.2%
U.S. DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE

Figure 1

and more than half of their sales (56 percent). Vegetable, fruit, and other meat-producing livestock farms (including ranches), on the other hand, accounted for about two-thirds of all farms with sales of $1 million or more (64 percent) and for two-thirds of their sales (68 percent) (app. table 5).

Although few in number, farms with sales of $1 million or more are economically important in most types of farms. In 1964, the 94 topscale vegetable farms accounted for 23 percent of the sales of the Nation's 23,207 commercial vegetable farms. The 68 topscale field crop farms (other than cash-grain, tobacco, and cotton farms) with $1 million or more sales, accounted for 16 percent of sales from the Nation's 35,130 commercial field crop farms. The 322 topscale livestock farms (other than poultry farms, dairy farms, and ranches) accounted for 11 percent of all sales by the 514,529 commercial livestock farms. The 81 topscale ranches accounted for 20 percent of all sales by the 66,282 commercial ranches. The 48 topscale miscellaneous farms accounted for 8 percent of all sales by the 78,528 commercial miscellaneous farms. The saler proportions by units with sales of $1 million or more were considerably smaller for the topscale cash-grain and dairy farms (table 4).

Two additional observations concerning the number and sales of farms with sales of $100,000 or more are relevant here. Changes over time in the number of these farms varied greatly by type of farm. From 1959 to 1964, the largest farms of the field crop and poultry farm types increased in number at a fast rate. The rate was slower for the largest cotton, fruit, and dairy farms (app. table 6).

Table 4.--Farms with sales of $100,000 or more, by specified size, and their sales as a percentage of all commercial farms, by type of farm, 1964

Type of farm	All commercial farms	Size in value of sales				
		Total $100,000 or more	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999
	No.	No.	No.	No.	No.	No.
All commercial farms	2,165,712	31,401	919	1,574	7,760	21,148
Cash-grain	404,253	2,141	5	29	345	1,762
Tobacco	171,384	102	11	7	27	57
Cotton	164,076	3,465	36	112	847	2,470
Other field crops	35,130	2,237	68	83	560	1,526
Vegetable	23,207	1,590	94	158	521	817
Fruit and nut	57,236	2,511	93	168	711	1,539
Poultry	82,120	4,744	89	224	1,212	3,219
Dairy	366,967	2,576	19	93	609	1,855
Livestock farms (other than poultry and dairy farms and livestock ranches)	514,529	6,692	322	368	1,436	4,566
Livestock ranches	66,282	1,815	81	117	485	1,132
General	201,980	1,884	53	90	504	1,237
Miscellaneous	78,528	1,644	48	125	503	968
	Sales	Sales as a percentage of all commercial farm sales				
	Mil. dol.	Pct.	Pct.	Pct.	Pct.	Pct.
All commercial farms	34,369	24.8	6.9	3.1	6.5	8.3
Cash-grain	5,506	6.4	0.1	0.3	1.8	4.2
Tobacco	1,119	4.0	2.2	0.4	0.7	0.7
Cotton	2,434	31.3	4.5	3.1	10.0	13.7
Other field crops	1,289	49.1	16.1	4.4	12.4	16.2
Vegetable	857	67.0	22.8	12.8	18.3	13.1
Fruit and nut	1,616	46.6	13.3	7.0	13.2	13.1
Poultry	2,919	38.0	5.7	5.3	12.1	14.9
Dairy	5,355	9.9	0.7	1.3	3.2	4.7
Livestock farms (other than poultry and dairy farms and livestock ranches)	8,295	26.8	11.4	3.0	5.0	7.4
Livestock ranches	1,410	46.5	19.7	5.7	10.3	10.8
General	2,621	18.3	4.0	2.3	5.6	6.4
Miscellaneous	948	44.5	7.5	8.4	15.0	13.6

Source: Census of Agriculture, Vol. II, Ch. 10, table 8 and derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Average sales of the largest farms also differ by type of farm. Those in the tobacco, vegetable, fruit, and meat-producing livestock groups had the highest average annual sales. The largest cash-grain and dairy farms had lower average sales. The largest cotton and other field crop farms had higher average sales than did the largest tobacco, vegetable, and fruit farms. For the 919 topscale farms (sales of $1 million or more), livestock ranches and other field crop farms had the largest average annual sales (app. table 7).

Geographic Regions

In 1964, farms with sales of $100,000 or more were slightly more numerous in the West than in the South, and slightly more numerous in the South than in the North (table 5). The largest vegetable, fruit, dairy, and general farms, as well as the largest livestock ranches, were concentrated in the West; and the largest cash-grain, tobacco, cotton, and poultry farms, in the South. Livestock and field crop farms, as well as miscellaneous farms, occurred mostly in the North.

The 919 farms with sales of $1 million or more have a somewhat different geographic distribution by type of farm. Except for tobacco, miscellaneous, fruit, and poultry farms, topscale farms were centered in the West in 1964. Topscale tobacco and miscellaneous farms were mainly in the North. Fruit and poultry farms of this size were most numerous in the South. In 1964, the North had only 18 percent of all topscale farms and accounted for only 15 percent of total marketings from this size class (table 5 and app. table 8).

The dominance of the largest farms in the West is evident for all types of farms in that part of the country, but is especially pronounced for vegetable, cotton, other field crop, poultry, and other livestock farms (table 6 and app. tables 9, 10, and 11).

The size of these largest farms by type of farm also differs by regions. Generally, these farms are larger in the West and South than in the North (app. table 12).

The Source of Sales

An increasing amount of farm products are marketed from the largest farms. But these increases vary greatly depending on the kind of products marketed. For example, the largest farms' share of vegetables sold increased from 49 percent in 1959 to 61 percent in 1964; for fruits and nuts, their share increased from 31 to 46 percent; for poultry and poultry products, from 17 to 35 percent; and dairy products, only from 7 to 11 percent (table 7).

Marketings by the largest farms increased as a proportion of all sales especially rapidly for eggs and potatoes. But the increase is also considerable for many other commodities (app. table 13).

In 1964, more than half of all cattle fattened on grain and concentrates came from farms with sales of $100,000 or more. The largest farms accounted also for 61 percent of vegetables sold, 58 percent of turkeys raised, 46 percent of acreage in Irish potatoes, 37 percent of acreage in rice, 32 percent of land in orchards, and 30 percent of acreage in sugarbeets. Their share in other farm products was much smaller. The largest farms accounted for only 4 percent of hogs and pigs sold, 6

Table 5.--Percentage distribution of number and sales of farms, by specified value of sales, by type of farm and by geographic regions, 1964

Type of farm	Farms with sales of $100,000 or more				Farms with sales of $1,000,000 or more			
	Total farms	Regional distribution of farms			Total farms	Regional distribution of farms		
		North	South	West		North	South	West
	No.	Pct.	Pct.	Pct.	No.	Pct.	Pct.	Pct.
All farms	31,401	30.8	32.9	36.3	919	18.1	24.9	57.0
Cash-grain	2,141	19.1	50.7	30.2	5	---	---	100.0
Tobacco	102	39.2	60.8	---	11	100.0	---	---
Cotton	3,465	1.3	70.3	28.4	36	---	11.1	88.9
Other field crops	2,237	42.0	17.7	40.3	68	7.4	13.2	79.4
Vegetable	1,590	15.0	24.5	60.5	94	2.1	33.0	64.9
Fruit and nut	2,511	12.2	30.0	57.8	93	1.1	58.1	40.8
Poultry	4,744	32.6	47.0	20.4	89	21.3	42.7	36.0
Dairy	2,576	11.9	26.1	62.0	19	10.5	36.9	52.6
Livestock farms (other than poultry and dairy farms and livestock ranches)	6,692	70.9	11.0	18.1	322	31.1	15.8	53.1
Livestock ranches	1,815	10.6	31.4	58.0	81	6.2	24.7	69.1
General	1,884	9.2	28.4	62.4	53	---	3.8	96.2
Miscellaneous	1,644	45.3	27.4	27.3	48	43.7	27.1	29.2
	Sales	Regional distribution of sales			Sales	Regional distribution of sales		
	Mil. dol.	Pct.	Pct.	Pct.	Mil. dol.	Pct.	Pct.	Pct.
All farms	8,539	24.9	29.8	45.3	2,367	15.1	23.0	61.9
Cash-grain	352	16.0	48.4	35.6	7	---	---	100.0
Tobacco	44	77.2	22.8	---	24	100.0	---	---
Cotton	762	0.9	57.1	42.0	111	---	4.4	95.6
Other field crops	633	28.6	17.1	54.3	208	3.8	15.2	81.0
Vegetable	575	9.2	28.4	62.4	195	1/	1/	64.1
Fruit and nut	754	7.5	42.0	50.5	215	1/	1/	34.2
Poultry	1,109	29.0	46.9	24.1	166	16.3	45.9	37.8
Dairy	530	9.7	27.8	62.5	38	1/	1/	1/
Livestock farms (other than poultry and dairy farms and livestock ranches)	2,223	49.7	13.2	37.1	948	26.6	14.4	59.0
Livestock ranches	655	7.2	26.5	66.3	278	2.9	18.0	79.1
General	480	6.1	19.0	74.9	106	---	1/	1/
Miscellaneous	422	44.2	26.9	28.9	71	44.4	24.0	31.6

1/ Data withheld to avoid disclosure of operations.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Table 6.--Number and sales of farms, by specified value of sales, and their percentage of commercial farms, by type of farm and by geographic region, 1964

Type of farm	North			South			West		
	All commercial farms	Farms with sales of $100,000 or more as a percentage of all commercial farms	Farms with sales of $1,000,000 or more as a percentage of all commercial farms	All commercial farms	Farms with sales of $100,000 or more as a percentage of all commercial farms	Farms with sales of $1,000,000 or more as a percentage of all commercial farms	All commercial farms	Farms with sales of $100,000 or more as a percentage of all commercial farms	Farms with sales of $1,000,000 or more as a percentage of all commercial farms
All commercial farms	No.	Pct.	Pct.	No.	Pct.	Pct.	No.	Pct.	Pct.
Cash-grain	309,860	0.1	---	66,438	1.6	---	27,955	2.3	1/
Tobacco	3,221	1.2	0.3	168,163	1/	1/	---	---	---
Cotton	3,484	1.3	---	154,336	1.6	1/	6,256	15.7	0.5
Other field crops	7,996	11.8	0.1	18,184	2.2	0.1	8,950	10.1	0.6
Vegetables	9,005	2.6	1/	9,137	4.3	0.3	5,065	19.0	1.2
Fruit and nut	12,236	2.5	1/	12,595	6.0	0.4	32,425	4.5	0.1
Poultry	28,884	5.3	0.1	46,998	4.7	0.1	6,238	15.6	0.5
Dairy	286,765	0.1	1/	57,982	1.2	1/	22,220	7.2	1/
Ranches	6,377	3.0	0.1	34,573	1.7	0.1	25,332	4.2	0.2
Other livestock	362,499	1.4	1/	133,445	0.5	1/	38,585	3.1	0.4
General	98,840	0.2	---	78,779	0.6	1/	24,361	4.8	0.2
Miscellaneous	27,920	2.7	0.1	39,219	1.1	1/	11,309	3.9	0.1
	Sales	Sales as a percentage of all commercial farm sales		Sales	Sales as a percentage of all commercial farm sales		Sales	Sales as a percentage of all commercial farm sales	
All commercial farms	Mil. dol.	Pct.	Pct.	Mil. dol.	Pct.	Pct.	Mil. dol.	Pct.	Pct.
Cash-grain	3,882	1.4	---	1,010	16.9	---	617	20.3	1.2
Tobacco	48	71.0	49.7	1,07:	0.9	---	---	---	---
Cotton	64	10.5	---	1,903	22.9	0.2	467	68.6	22.8
Other field crops	405	44.7	1.9	323	33.6	9.8	561	61.3	30.1
Vegetable	176	30.1	2/	228	71.5	2/	453	79.1	27.7
Fruit and nut	235	24.1	2/	477	66.5	2/	904	62.1	8.2
Poultry	906	35.5	3.0	1,596	32.6	4.8	417	64.2	15.1
Dairy	3,629	1.4	2/	981	15.0	2/	745	44.4	2/
Ranches	133	35.6	6.1	470	36.9	10.6	806	53.8	27.2
Other livestock	6,034	18.3	4.2	1,001	29.4	13.6	1,260	65.5	44.4
General	1,063	2.7	---	835	10.9	2/	721	49.9	2/
Miscellaneous	462	40.4	6.8	258	44.1	6.6	228	53.4	9.8

1/ Less than 0.05 percent.
2/ Data withheld to avoid disclosure of operations.

Source: 1964 Census of Agriculture, Vol. II, Ch. 10, table II, and derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Table 7.—Value of products sold by farms with sales of $100,000 or more, and percentage their sales are of all farm sales, by source of sales, 1959 and 1964

Farm products sold by source	Value of sales		Percentage of all farm sales	
	1959	1964	1959	1964
	Million dollars	Million dollars	Percent	Percent
Farm products	4,981	1/8,533	16.3	24.2
Crops	2,386	4,007	17.7	24.4
Field crops other than vegetable, fruits, and nuts	1,261	2,255	12.0	17.5
Vegetables	371	601	48.9	60.9
Fruits and nuts	438	765	31.0	45.7
Forest products and horticultural specialty products	316	386	38.4	43.9
Livestock and poultry and their products	2,595	4,526	15.1	24.0
Poultry and poultry products	396	1,082	16.8	35.3
Dairy products	297	487	7.4	10.5
Livestock and livestock products other than poultry and dairy	1,902	2,957	17.6	26.5

1/ Does not include income from recreation facilities.

Source: 1964 Census of Agriculture, Vol. I, Ch. 6, table 15.

percent of milk cows on the farm, 3 percent of the acreage in corn harvested for grain, and 7 percent of the acreage of soybeans harvested (table 8).

In 1964, farms with sales of $1 million or more accounted for more than 27 percent of all fattened cattle sold and 21 percent of all vegetables sold. These farms were much less important for other farm products. However, they all reported a large amount of production. Of top-scale farms, 426 sold annually an average 12,000 head of fattened cattle.

Table 8.—Sales, production, or acres harvested on farms with sales of $100,000 or more, by specified size as a percentage of all farms, 1964

Specified products	Unit	Percentage of all farms				
		Total $100,000 or more	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999
		Percent	Percent	Percent	Percent	Percent
Livestock:						
Cattle and calves	Head sold	23.1	9.2	2.7	4.8	6.4
Cattle fattened on grain	do.	51.3	27.2	5.9	8.4	9.8
Calves fattened on grain	do.	20.9	7.6	3.0	5.3	5.0
Milk cows	Head on farm	5.9	0.4	0.6	1.9	3.0
Steers and bulls	do.	21.4	7.4	2.4	4.9	6.7
Hogs and pigs	Head sold	4.1	0.2	0.2	1.1	2.6
Sheep and lambs	do.	25.4	6.1	3.1	6.8	9.4
Poultry:						
Broilers and other meat-type chickens	Number sold	21.2	4.9	1.8	4.7	9.8
Hens and roosters for slaughter	do.	30.0	4.3	4.8	10.2	10.7
Turkeys	Number raised	57.8	7.8	6.9	18.2	24.9
Specified crops:						
Corn for grain	Acres harvested	3.1	0.1	0.2	0.7	2.1
Corn for silage, fodder and hogged	do.	6.0	0.4	0.6	1.7	3.3
Wheat	do.	4.6	0.2	0.3	1.1	3.0
Rice	do.	37.3	1.5	2.6	12.3	10.9
Sorghum for all purposes	do.	14.8	0.8	1.3	4.1	8.6
Soybeans for beans	do.	7.1	0.1	0.4	2.0	4.6
Soybeans for beans	Bushels harvested	7.0	0.1	0.4	2.0	4.5
Peanuts for nuts	Acres harvested	5.5	0.1	0.3	1.2	3.9
Field seed	do.	7.8	1.9	0.9	2.3	2.7
Irish potatoes	do.	46.2	6.0	5.1	15.1	18.0
Sugarbeets for sugar	do.	29.9	3.5	3.4	10.8	12.2
Sugarbeets for sugar	Tons harvested	35.3	4.4	4.1	13.0	13.8
Vegetables	Sales in dollars	40.3	9.2	6.5	13.2	11.4
Vegetables	Acres harvested	60.9	21.3	11.1	16.0	12.5
Land in orchards	Acres planted	31.8	7.9	4.2	9.6	10.1
Nursery and greenhouse products	Sales in dollars	52.6	9.4	10.6	17.9	14.7
Cotton	Bales harvested	29.9	4.5	3.3	9.5	12.6
Tobacco	Pounds harvested	2.0	0.5	0.1	0.5	0.9

Source: Data derived from special tabulation of the 1964 Census of Agriculture made available by Bur. of Census and from Census of Agriculture, Vol. II, Ch. 6, table 15.

For the 200 topscale farms reporting vegetables sold, the average was 1,500 acres in harvested vegetables. For broilers, the 32 topscale farms sold about 3 million broilers per farm. The 195 topscale farms reporting cotton produced an average 3,400 bales per farm; 48 topscale farms averaged 1,200 milk cows; 67 topscale farms sold 20,000 sheep and lambs; 17 of these farms averaged more than half a million pounds of tobacco; and 188 topscale farms averaged 1,800 acres of orchards (table 9).

Census data show that, in 1964, many of the farms with sales of $100,000 or more produced more than one main product, and had considerable sideline production. 6/ But, however large in absolute terms, this sideline production represented only a small fraction of the total production of these farms. As shown below, the 31,401 largest farms are highly specialized in their production.

Specialization of Production

The degree of specialization of production was measured by the percentage that production of the main product or products was of total production. It is evident that production is highly specialized for all sizes of farms. However, the degree of specialization increases with the size of farm, except for tobacco, cotton, vegetable, and dairy farms. In 1964, sales of the main products accounted for more than 90 percent of total farm sales by most of the largest farms. The lower degree of specialization on cotton and especially tobacco farms is due mainly to the acreage allotment regulations for these two crops and to their more exclusive Census classification. In 1964, sales of dairy products by the largest dairy farms amounted to only 86.6 percent of total farm sales by these farms. However, if sales of calves--which probably should be considered one of the main products of dairy farms--are added, the percentage rises above the 90-percent mark. The apparently lower degree of specialization on vegetable farms is because many of these farms (especially in California) grow potatoes, sugarbeets, and a few other field crops not classified by Census as vegetables (table 10).

PRODUCTION RESOURCES ON THE LARGEST FARMS

The largest farms are becoming economically more important not only through their increasing commercial production, but also through the increasing value of their production expenditures, their greater use of hired labor, by the increasing acreage they operate, and by the increasing value of their farm equipment. These increases also mean, of course, that their net production increase, in a value-added sense, is less than their gross sales would suggest.

Purchased Inputs

In 1959, the largest farms accounted for 16 percent of all feed bought by farmers, and in 1964, this proportion increased to 29 percent. For the same period, purchases of livestock and poultry increased from 28 to 39 percent, purchased seed from 15 to 17 percent, purchased fuel and oil from 8 to 11 percent, expenses for machine hire from 15 to 24 percent, and expenses for hired labor from 30 to 40 percent (table 11).

6/ 1964 Census of Agriculture, Vol. II, Ch. 6, p. 609.

Table 9.--Average and total production, sales, or acres harvested on farms with sales of $1 million or more and as a percentage of all farms, 1964

Specified product	Unit	Farms reporting	Average per farm reporting	Total by farms reporting	Total as percentage of total for all farms
Livestock and poultry sold alive or on farms		Number	Units 1/	Units 1/	Percent
Livestock:					
Cattle and calves	Head sold	560	10,297	5,766,549	9.2
Cattle fattened on grain	do.	426	12,019	5,120,146	27.2
Calves fattened on grain	do.	54	4,801	259,233	7.6
Milk cows	Head on farm	48	1,225	58,804	0.4
Steers and bulls	do.	542	3,988	2,161,789	7.4
Hogs and pigs	Head sold	72	2,058	148,153	0.2
Sheep and lambs	do.	67	19,981	1,338,739	6.1
Poultry:					
Broilers and other meat-type chickens	Number sold	32	2,922,213	93,510,811	4.9
Hens and rooster for slaughter	do.	83	105,638	8,767,981	4.3
Turkeys	Number raised	32	253,966	8,126,906	7.8
Specified crops:					
Corn for grain	Acres harvested	80	538	43,057	0.1
Corn for silage, fodder and hogged	do.	133	294	39,146	0.4
Wheat	do.	123	607	74,603	0.2
Rice	do.	21	1,302	27,345	1.5
Sorghum for all purposes	do.	154	478	73,611	0.8
Soybeans for beans	do.	28	866	24,249	0.1
Soybeans for beans	Bushels harvested	28	20,541	575,139	0.1
Peanuts for nuts	Acres harvested	5	357	1,784	0.1
Irish potatoes	do.	73	965	70,465	6.0
Sugarbeets for sugar	do.	106	460	48,782	3.5
Sugarbeets for sugar	Tons harvested	106	9,582	1,015,662	4.4
Vegetables	Acres harvested	200	1,050,898	210,179,545	21.3
Vegetables	Sales in dollars	200	1,543	308,693	9.2
Land in orchards	Acres planted	188	1,787	335,969	7.9
Nursery and greenhouse products	Sales in dollars	69	961,184	66,321,722	9.4
Cotton	Bales harvested	195	3,377	658,442	4.5
Tobacco	Pounds harvested	17	552,505	9,392,595	0.5

1/ See unit column.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Table 10.--Sales of the main product or group of products as a percentage of total sales, by type and size of farm, 1964

Type of farm	Sales of main product or group of products as a percentage of total farm sales of -- 1/			
	The largest farms 2/	Large farms 2/	Medium-sized farms 2/	Small farms 2/
	Percent	Percent	Percent	Percent
Cash-grain	91.1	84.2	81.5	85.9
Tobacco	31.4	73.9	80.2	83.5
Cotton	69.9	74.7	77.3	83.8
Other field crops	93.8	91.3	87.9	87.0
Vegetables 3/	86.9	81.7	80.9	80.4
Fruit and nut	94.4	94.2	94.1	93.0
Poultry	95.6	92.4	89.8	83.7
Dairy 4/	86.6	77.1	74.0	70.4
Other livestock farms and ranches	94.2	82.0	77.1	85.1

1/ Indian reservations, institutional farms, and other special farms are not included.

2/ Farm sizes are measured as follows: The largest--sales of $100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

3/ The lower percentage is because many farms (especially in California) grow potatoes, sugarbeets, and other field crops not classified by Census as vegetables.

4/ If the sale of calves is added, the percentage would be over 90 percent.

Source: Derived from 1964 Census of Agriculture, Vol. 11, Ch. 10, tables 9-18 and Vol. II, Ch. 6, table 16.

Table 11.—Specified purchased inputs on farms with sales of $100,000 or more, and as a percentage of total for all farms, by specified size, 1959 and 1964 1/

Specified purchased inputs	1959 purchased inputs on farms with sales of $100,000 or more			1964 purchased inputs on farms with sales of $100,000 or more			1964 purchased inputs on farms with sales of $100,000 or more, by specified size, as a percentage of total for all farms			
	Total	Average per farm	As a percentage of purchased inputs of all farms	Total	Average per farm	As a percentage of purchased inputs of all farms	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999
	Million dollars	Dollars	Percent	Million dollars	Dollars	Percent	Percent	Percent	Percent	Percent
Feed for livestock and poultry	737	36,889	15.5	1,576	30,180	28.7	8.7	3.6	7.3	9.0
Purchase of livestock and poultry	1,095	54,808	28.4	1,616	51,463	38.5	16.1	4.6	8.0	10.0
Machine hire	118	5,906	14.7	208	6,624	23.9	5.4	3.3	7.6	7.6
Hired labor	789	39,491	30.1	1,123	35,763	40.6	10.9	5.7	11.4	12.1
Seeds, bulbs, plants and trees	73	3,654	14.8	110	3,503	16.7	2.4	2.1	5.4	6.7
Fertilizer	102	5,105	8.5	276	8,790	15.6	3.4	1.8	4.3	6.0
Gasoline and other petroleum oil and fuel	116	5,806	7.5	194	6,178	10.9	1.6	1.1	3.2	5.0
Total	3,030	151,659	19.9	5,103	162,510	29.0	9.2	3.7	7.6	8.9

1/ Indian reservations, institutional farms, and other special farms are not included.

Source: 1959 Census of Agriculture, Vol. V, Part 7, table 6; 1964 Census of Agriculture, Vol. II, Ch. 6, table 16; and a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

A large proportion of purchased inputs are made on farms with sales of $1 million or more. In 1964, these topscale farms accounted for 9 percent of all purchased feed, 16 percent of the value of all livestock and poultry bought alive, 11 percent of the hired labor wage bill, and 5 percent of all expenses for machine hire. Proportions of other purchased inputs by these farms were much smaller (table 11).

The value of purchased inputs as a proportion of gross sales of farm products is directly related to size of farm. In 1964, on medium-sized farms the value of specified purchased inputs amounted to 42 percent of the value of all farm products sold, on large farms, 48 percent, and on the largest farms, 60 percent.[7] The relatively high proportion of purchased inputs by small farms is due to special production conditions on many part-time and part-retirement farms. On farms with sales of $1 million or more, specified purchased inputs amounted to 68 percent of their total sales. This proportion was mostly due to increasing expenditure for purchased feed, livestock, and hired labor (table 12).

Hired Labor

In 1959, the farms with sales of $100,000 or more used about 390,000 man-years of hired labor--30 percent of total hired work used on all farms; in 1964, they used 440,000 man-years of hired labor--40 percent of all hired work. Furthermore, the concentration of hired labor on the largest farms and their dependence on that labor increases with size of farm. In 1964, the 919 farms with sales of $1 million or more accounted for 11 percent of the total hired labor bill on farms. These farms averaged 130 man-years of hired labor per farm. Included in the man-year estimate per farm were 86 regular workers with 150 days or more of work during 1 year (table 13).[8]

A classification of all farms by their use of hired labor shows that an overwhelming majority of farms either do not employ hired labor at all or employ very little hired labor. Family labor is responsible for most of total farm production. In 1964, about 50 percent of all farms had no hired labor and accounted for about a fifth of all farm products sold. An additional 38 percent used less than one-half man-years of hired labor and had 30 percent of total farm marketings. Together, these farms without hired labor or with little hired labor constituted 88 percent of all farms and accounted for 50 percent of all farm products sold. However, not all farms used so little hired labor. As shown in table 13, use of hired labor increases directly with the size of farm. Only 2 percent of the largest farms had no hired labor, and accounted for 1 percent of all sales by the largest farms. But 21 percent had more than 15 man-years of hired labor and accounted for 43 percent of all sales by the largest farms (table 14).

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[7] Specified purchased inputs are feed, livestock and poultry bought alive, machine hire, hired labor, seed, fertilizer, fuel, and oil.

[8] For the number of regular workers (working 150 days or more during one year) see table 28.

Table 12.--Specified purchased inputs as a percentage of total farm sales by size of farm, 1964

Item	Size of farm in value of sales								
	The largest					Large-- $20,000- $99,999	Medium-- $5,000- $19,999	Small-- less than $5,000	All farms 1/
	Total	$1,000,000 or more	$500,000- $999,999	$200,000- $499,999	$100,000- $199,999				
	Million dollars								
Total farm sales	8,539	2,367	1,067	2,253	2,852	13,588	10,267	2,754	35,148
	Purchases as a percentage of sales								
	Percent								
Purchased inputs as a percentage of sales:									
Feed for livestock and poultry	18.4	20.4	18.4	17.8	17.4	15.6	12.9	17.1	15.6
Livestock	17.2	27.5	16.5	12.8	12.4	11.8	6.8	9.0	11.9
Poultry	1.7	0.9	1.6	2.0	2.2				
Machine hire	2.4	2.0	2.7	2.9	2.3	2.0	2.6	4.1	2.4
Hired labor	13.2	12.9	15.0	14.2	11.9	7.5	4.7	5.2	7.9
Seeds, bulbs, plants, and trees	1.3	0.7	1.3	1.6	1.6	1.7	2.2	3.2	1.9
Fertilizer	3.2	2.6	3.0	3.4	3.7	5.1	5.6	8.1	5.0
Fuel and oil	2.3	1.2	1.9	2.5	3.1	4.5	6.8	10.3	5.1
Total	59.7	68.2	60.4	57.2	54.6	48.2	41.6	2/57.0	49.8

1/ Indian reservations, institutional farms, and other special farms are not included.
2/ The relatively high proportion was due to the special organization of the many part-time and part-retirement units in this group.

Source: Derived from special tabulation of the 1964 Census of Agriculture made available by Bur. of Census and from Vol. II, Ch. 6, table 13, of the 1964 Census of Agriculture.

Table 13.--Wage bill by size of farm, all farms, 1964

Size of farm in value of sales	Farms	Wage bill		Estimated man-years of hired labor per farm 1/
		Value	Percentage of all farms	
	Number	Million dollars	Percent	Man-years
All farms	2/ 3,155,679	2/ 2,770	100.0	0.3
The largest:				
$1,000,000 or more	919	304	11.0	130.3
$500,000-$999,999	1,574	160	5.8	39.9
$200,000-$499,999	7,760	320	11.5	16.2
$100,000-$199,999	21,148	339	12.2	6.3
Total	31,401	1,123	40.5	14.1
Large:				
$20,000-$99,999	370,411	1,021	36.9	1.1
Medium:				
$5,000-$19,999	971,710	482	17.4	0.2
Small:				
Less than $5,000	1,782,137	144	5.2	---

1/ Man-years estimated by dividing the wage bill by the cost of one year of full time work by a male worker.

2/ Indian reservations, institutional farms, and other special farms are not included.

Source: Data derived from the 1964 Census of Agriculture, Vol. II, Ch. 6, table 15, and from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Table 14.--Farms and farm sales by size of farm and by man-years of hired labor, 1964

Man-years of hired labor	Percentage distribution of specified groups of farms 1/									
	All farms 2/		The largest		Large		Medium		Small	
	Number	Sales	Number	Sales	Number	Sales	Number	Sales	Number	Sales
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
None	49.8	19.4	2.1	1.3	15.7	13.6	35.0	32.6	65.9	54.4
Less than 0.5	38.0	30.5	3.9	2.2	35.6	30.6	50.3	50.4	32.5	42.6
0.5-0.9	4.9	8.3	3.3	1.9	13.2	12.6	8.5	9.4	1.2	2.3
1.0-1.4	2.6	6.5	5.7	3.3	10.9	11.4	3.5	4.2	0.3	0.5
1.5-2.4	2.1	7.3	10.5	6.3	11.3	12.9	2.0	2.5	0.1	0.2
2.5-4.9	1.5	8.2	20.7	13.7	9.1	12.0	0.6	0.8	3/	3/
5.0-6.9	0.4	3.3	11.2	8.2	2.2	3.3	0.1	0.1	3/	3/
7.0-9.9	0.3	2.9	10.8	8.8	1.2	2.0	3/	3/	3/	3/
10.0-14.9	0.2	3.0	11.0	10.9	0.6	1.1	3/	3/	3/	3/
15.0 and over	0.2	10.6	20.8	43.4	0.2	0.5	3/	[illegible]	3/	3/
All farms	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[1] Farm sizes are measured as follows: The largest--sales of $100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

[2] Indian reservations, institutional farms, and other special farms are not included.

[3] Less than 0.05 percent.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

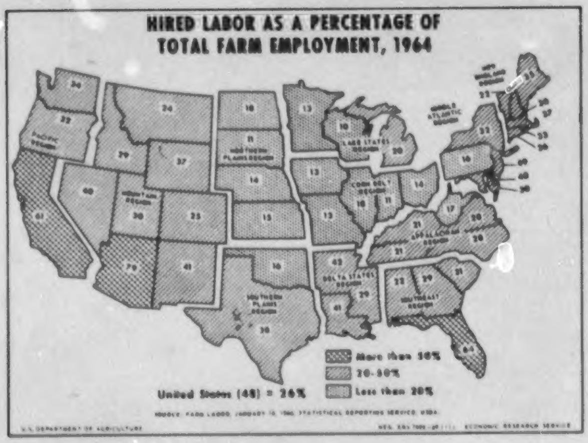
HIRED LABOR AS A PERCENTAGE OF
TOTAL FARM EMPLOYMENT, 1964
PACIFIC REGION
MOUNTAIN REGION
NORTHERN PLAINS REGION
SOUTHERN PLAINS REGION
LAKE STATES REGION
CORN BELT REGION
DELTA STATES REGION
APPALACHIAN REGION
SOUTHEAST REGION
MIDDLE ATLANTIC REGION
NEW ENGLAND REGION
More than 30%
20-30%
Less than 20%
United States (48) = 26%
U.S. DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE

Figure 2

The greater use of hired labor on the largest farms accounts for, to a great extent, the differences between States in the number of workers hired. States where the largest farms were dominant were also States with greater proportions of hired labor on farms (fig. 2). For example, in Arizona, California, and Florida, the largest farms accounted for 78 percent, 69 percent, and 69 percent of all farm products sold. The States' proportions of hired labor employment on farms were 81 percent, 64 percent, and 69 percent. In the Corn Belt and Lake States regions, where the eonomic importance of the largest farms was quite modest, the proportion of hired labor employment on farms was, on the average, below 15 percent (fig. 2).[9]

Farmland and Acreage Size

From 1959 to 1964, acreage of farmland increased noticeably on farms with sales of $20,000 or more (table 15). The increase, however, is due more to the expanding number of these farms than to an increase in their acreage. This explanation is reflected in the decreasing average acreage per farm. This decrease is reflected also in the fact that production on

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[9] For a more comprehensive report on farm labor, see W.L. Sellers and T.E. Eichers, "Farm Labor Inputs," USDA, ERS, Statis. Bul. No. 438, June 1969.

Table 15.--Acreage and use of land, by size of farm, and as a percentage of total for all farms, 1959 and 1964

Size of farm in value of sales 1/	Farmland 2/				Acreage of farmland by specified uses					
	Acreage 3/		Acres per farm		Cropland		Woodland		Pastureland except cropland and woodland 4/	
	1959	1964	1959	1964	1959	1964	1959	1964	1959	1964
	Million acres	Million acres	Acres	Acres	Million acres	Million acres	Million acres	Million acres	Million acres	Million acres
The largest	114	121	5,686	3,854	21	29	9	8	80	80
Large	305	335	1,041	905	113	121	25	26	159	162
Medium	402	375	355	386	205	164	49	42	131	137
Small 5/	259	230	115	159	109	80	71	61	64	73
All farms	1,080	1,061	292	336	448	396	154	137	434	452
	Percentage of total for all farms									
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
The largest	10.6	11.4	---	---	4.7	7.3	5.9	5.8	18.4	17.7
Large	28.2	31.6	---	---	25.1	30.6	16.2	19.0	36.6	35.8
Medium	37.2	35.3	---	---	46.0	41.9	31.8	30.7	30.2	30.3
Small 5/	24.0	21.7	---	---	24.2	20.2	46.1	44.5	14.8	16.2
All farms	100.0	100.0	---	---	100.0	100.0	100.0	100.0	100.0	100.0

1/ Farm sizes are measured as follows: The largest--sales of $100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

2/ Indian reservations, institutional and other special farms are not included.

3/ Acreage for farmland usage does not add to total acreage. The difference is accounted for by acres in houses, lots, roads, and wasteland, which are not included.

4/ Mostly grazing land.

5/ Operator households on these farms have, on the average, more nonfarm than farm income.

Source: 1959 Census of Agriculture, Vol. II, Ch. 11, table 5 and Vol. 5, part 7, table 6, and 1964 Census of Agriculture, Vol. II, Ch. 6, tables 15 and 16.

many of the largest farms is increasingly less dependent on the land. Such decreasing dependence is true for farms with cattle feeding, broilers, other meat production, and egg production, as well as for dry-lot dairy establishments.

Farms with sales of $100,000 or more accounted for about 10 percent of total farmland in both 1959 and 1964. This proportion increased from 5 to 7 percent for cropland. The percentage did not change for woodland, and decreased slightly for grazing land (table 15).

Not many of the 31,401 largest farms are extremely large in acreage. About 60 percent have less than 1,000 acres, and 3 percent have less than 10 acres (app. table 14). The average acreage of the largest farms ranges from 2,770 to 12,121 acres, depending on their size in value or sales. However, the greater part of their acreage--ranging from about 60 to 70 percent, consists of grazing land; 20 to 28 percent is cropland; and 5 to 10 percent, woodland (table 16).

Farm Equipment

The largest farms do not account for a large percentage of farm equipment. In 1964, they accounted for 5 percent of all motortrucks on farms, 4 percent of all tractors other than garden tractors (but 14 percent of crawler tractors), and 3 percent of field forage harvesters (table 17).

However, merely counting numbers is an incomplete measurement. This kind of measure does not show the importance of such equipment on the largest farms. Their machines and equipment are larger and technically more efficient than those on other farms (table 28).

LAND TENURE ON THE LARGEST FARMS

The pattern of tenure under which farmland is operated--the land tenure--is not changing significantly, but this pattern differs by size of farm. However, the tenure under which farm operators are controlling their land--the tenure of farm operator--is changing more significantly, both over time and by size of farm.

Tenure Under Which Land Is Operated

All the technical and economic changes in farming do not appear to be altering the traditional land tenure pattern. [10] From 1944 to 1964, the proportion of land operated under ownership, rental, and paid management did not change significantly. Throughout this period, about 55 percent of the land in farms was operated by owners, 35 percent, by renters, and about 10 percent, by paid managers (app. table 15).

On the farms with sales of $100,000 or more, the land tenure pattern differs slightly--with less land under ownership and more under rental and paid management. A difference in land tenure depending on the size

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[10] We are speaking here of the tenure under which farmland is operated, disregarding the composition of operating units. For example, in a part-owner farm, part of the land is owned by the operator, and another part is rented.

Table 16.--Amount and specified use of farmland on farms with sales of $100,000 or more, 1964

Size of farm in value of sales	Farms	Farmland		Average acreage per farm	Percentage of farmland in-- 1/		
		Amount	As percentage of U.S. total		Cropland	Woodland	Pastureland except cropland and woodland 2/
	Number	1,000 acres	Percent	Acres	Percent	Percent	Percent
$1,000,000 or more..	919	11,139	1.0	12,121	27.6	4.5	61.8
$500,000-$999,999...	1,574	13,162	1.2	8,362	19.7	9.8	68.0
$200,000-$499,999...	7,760	38,130	3.4	4,914	21.1	5.9	70.6
$100,000-$199,999...	21,148	58,590	5.3	2,770	26.0	7.4	64.4
Total..............	31,401	121,021	10.9	3,854	23.9	6.9	66.5

1/ Acreage for farmland usage does not add to 100 percent. The difference is accounted for by acres in houses, lots, roads, and wasteland, which are not included.
2/ Mostly grazing land.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Table 17.--Farm equipment on farms with sales of $100,000 or more as a percentage of specified equipment on all farms, by specified size, 1964

Farm equipment	All farms	Farms with sales of $100,000 or more				
		Total	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999
	Thousands	Percent	Percent	Percent	Percent	Percent
Motortrucks..........................	3,030	4.8	0.6	0.5	1.3	2.4
Tractors excluding garden...........	4,787	3.8	0.3	0.3	1.1	2.1
Crawler tractors.....................	186	13.8	2.4	1.4	4.2	5.8
Wheel tractors.......................	4,601	3.4	0.2	0.3	1.0	1.9
Grain combines.......................	910	2.3	0.1	0.1	0.6	1.8
Cornpickers..........................	690	1.2	NA	NA	NA	NA
Pickup balers........................	751	1.5	NA	NA	NA	NA
Field forage harvesters..............	316	3.4	NA	NA	NA	NA

NA = Not available.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

of the largest farms is noticeable on farms with sales of $500,000 to $999,999. Both the proportions of land under ownership and rental were smaller--46 percent and 30 percent--and the proportion of land under paid management was the largest--24 percent (table 18).

Tenure of Farm Operators

The proportion of farms operated by tenants decreased from 1959 to 1964, and the proportion operated by part owners increased. The proportion operated by full owners and paid managers did not change much. On the largest farms, the percentage operated by full and part owners increased slightly, and the percentage operated by tenants and paid managers decreased slightly.

However, the tenure of farm operators differs greatly by size of farm. In 1964, the pattern of these differences was clearly outlined. The proportion of farms operated by full owners and tenants decreased as the size of farm increased. The proportion of part owners, on the contrary, increased until the size of farm with sales of $200,000 was reached, but decreased on farms above that size. The proportion of farms under paid management increased from 0.4 percent of all medium-sized farms to 45 percent of all farms with sales of $1 million or more (table 19). 11/

OPERATORS ON THE LARGEST FARMS

The characteristics of operators on the largest farms differ from those of operators on smaller farms. Operators of the largest farms tend to be less involved in off-farmwork, to rely more on farm income, but a larger proportion of them do not reside on the farm. They do not differ much by age, but have a higher educational attainment than operators of smaller farms.

Off-Farmwork

The percentage of operators reporting off-farmwork has not changed much in recent years. It was 45 percent in 1959 and 46 percent in 1964. The proportion of operators reporting 200 or more days of off-farmwork increased from 24 to 26 percent during that period. However, the percentage of operators reporting off-farmwork is lower on larger farms. This is especially true for operators reporting 200 or more days of off-farmwork.

In 1964, on medium-sized farms, about 36 percent of all operators reported off-farmwork, and 12 percent reported 200 or more days of such work. On the largest farms, these proportions were 16 and 8 percent (table 20).

Operators' off-farmwork is practically all in nonfarm jobs. A small amount of work was done by farmers on farms other than their own.

11/ Because of the special structure of their many residential farms, full owners predominated on small farms. This fact greatly biases their comparability with other farms.

Table 18.--Tenure under which farmland is operated on farms with sales of $100,000 or more, 1964

Size of farm in value of sales	Total farmland acreage	Percentage of farmland operated under--		
		Ownership	Rental	Paid management
	Million acres		Percent	
All farms with sales of:				
$100,000 or more	121	49	39	12
$1,000,000 or more	11	51	36	13
$500,000-$999,999	13	46	30	24
$200,000-$499,999	38	48	41	11
$100,000-$199,999	59	50	40	10

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

On all sizes of farms, nonfarm jobs accounted for more than 90 percent of total work done by operators outside their farms (table 21).

The percentage of operators reporting off-farm jobs on the largest farms and the time they spent on those jobs differs by State. However, in all States, operators on larger farms tend to spend less time on off-farm jobs than do operators on smaller farms.[12]

Off-Farm Income

Dependence of the farm population on off-farm income is not a new development, but from 1947 to 1967, this dependence increased. Income from off-farm sources in the first few years after World War II accounted for about 32 percent of total personal income of the farm population; in 1967, such income was estimated to have accounted for 42 percent.[13]

The importance of income from off-farm sources declines as the size of farm increases. Thus, in 1964, on small farms, 89 percent of the operators reported household off-farm income; on medium-sized farms,

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[12] For more detailed information on the nonfarmwork of operators of farms with sales of $100,000 or more, see app. table 16; for operators of all farms and members of their households, see app. table 17.

[13] USDA, ERS, Farm Income Situation 211, July 1968, table 5H, p. 48.

Table 19.--Percentage distribution of farms by tenure of farm operators for all farms, by size of farm, 1959 and 1964

Tenure of farm operators	Farms with sales of $100,000 or more						Farms with sales less than $100,000, 1964 1/		
	1959	1964							
	Total	Total	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999	Large	Medium	Small
	Percent								
Full owners	29.9	30.1	18.8	25.7	29.6	31.1	29.7	41.6	72.5
Part owners	44.4	45.4	30.3	35.6	43.6	47.5	46.2	35.2	14.3
Managers	13.1	12.0	44.9	29.1	16.3	7.7	1.6	0.4	0.2
Tenants	12.6	12.5	6.0	9.6	10.5	13.7	22.5	22.8	13.0
All farm operators	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

1/ Farm sizes are measured as follows: The largest--sales of $100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

Source: Data derived from the 1959 Census of Agriculture, Vol. 5, part 7, table 6; the 1964 Census of Agriculture, Vol. II, Ch. 6, table 15; and from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Table 20.--Number and percentage of farm operators reporting specified amount of off-farmwork, by size of farm, 1964

Size of farm in value of sales 1/	Operators reporting off-farmwork--				Operators reporting "none" or not reporting	All operators
	1-99 days	100-199 days	200 days and over	Total days		
	Number					
The largest:						
$1,000,000 or more	28	17	87	132	787	919
$500,000-$999,999	55	28	161	244	1,330	1,574
$200,000-$499,999	359	150	687	1,196	6,564	7,760
$100,000-$199,999	1,486	440	1,565	3,491	17,657	21,148
Total	1,928	635	2,500	5,063	26,338	31,401
Large	61,112	10,900	22,450	94,462	275,949	370,411
Medium	182,317	51,375	114,486	348,178	623,532	971,710
Small	203,529	126,064	684,389	1,013,982	768,175	1,782,157
Total 2/	448,886	188,974	823,825	1,461,685	1,693,994	3,155,679
	Number as a percentage of all operators					
	Percent					
The largest:						
$1,000,000 or more	3.0	1.9	9.5	14.4	85.6	100.0
$500,000-$999,999	3.5	1.8	10.2	15.5	84.5	100.0
$200,000-$499,999	4.6	1.9	8.9	15.4	84.6	100.0
$100,000-$199,999	7.0	2.1	7.4	16.5	83.5	100.0
Total	6.1	2.0	8.0	16.1	83.9	100.0
Large	16.5	2.9	6.1	25.5	74.5	100.0
Medium	18.7	5.3	11.8	35.8	64.2	100.0
Small	11.4	7.1	38.4	56.9	43.1	100.0
Total 2/	14.2	6.0	26.1	46.3	53.7	100.0

1/ Farm sizes are measured as follows: The largest--sales of $100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

2/ Indian reservations, institutional farms, and other special farms are not included.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census, and from the 1964 Census of Agriculture, Vol. II.

Table 21.--Amount and percentage distribution of operators off-farmwork on nonfarm jobs, by size of farm, 1964

Days worked	All farms 1/	Size of farm 2/			
		Largest	Large	Medium	Small
	Days				
On another farm........	10,357,458	28,343	638,338	2,479,906	7,210,871
At nonfarm jobs........	239,450,675	720,135	8,385,713	39,927,779	190,417,048
Total..............	249,808,133	748,478	9,024,051	42,407,685	197,627,919
	Percent				
On another farm........	4.1	3.8	7.1	5.8	3.6
At nonfarm jobs........	95.9	96.2	92.9	94.2	96.4
Total..............	100.0	100.0	100.0	100.0	100.0

1/ Indian reservations, institutional farms, and other special farms are not included.

2/ Farm sizes are measured as follows: The largest--$100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

Source: 1964 Census of Agriculture, Vol. II, Ch. 6, tables 15 and 16.

74 percent; on large farms, 67 percent; and on the largest farms, only 57 percent.

Differences in the importance of off-farm income, depending on the size of farm, can be indicated by comparing off-farm income with farm marketings. Off-farm income seems to be by far the main source of livelihood for families living on small farms. This proportion is due mostly to the large number of part-time and part-retirement units among small farms. Off-farm income equalled 23 percent of farm marketings on medium-sized farms, 7 percent on large farms, and less than 2 percent on the largest farms (table 22). The significance of off-farm income, however, is greater than that indicated by its comparison with farm marketings. Usually, off-farm income is more nearly net income than that from sales of farm products.

Sources of off-farm income for all members of operators' households also vary by size of farm. The main sources of off-farm income on medium- and small-sized farms are wages and salaries from nonfarm jobs. Off-farm income on larger farms comes primarily from Government payments, rent of farm and nonfarm property, interest, dividends, and similar sources (app. table 18).14/

14/ For more information, see 1964 Census of Agriculture, Vol. 3, part 3, table 6, p. 22.

Table 22.--Off-farm income of all persons in farm operator households as a percentage of farm sales, by size of farm, 1964

Size of farm in value of sales 1/	Operator households		Farm sales	Off-farm income of operator households	Off-farm income as a percentage of farm sales
	Total	Percentage reporting off-farm income			
	Number	Percent	1,000 dollars	1,000 dollars	Percent
Largest...........	31,401	57.4	8,538,811	146,033	1.7
Large.............	370,411	67.4	13,587,753	986,305	7.3
Medium............	971,710	73.8	10,267,240	2,392,922	23.3
Small.............	1,782,157	88.5	2,753,891	6,522,434	2/236.8
All farms 3/...	3,155,679	81.2	35,147,695	10,047,694	28.6

1/ Farm sizes are measured as follows: The largest--$100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

2/ The high off-farm income percentage of farm sales is due to the great number of part-time and residential farms that had only insignificant farm production.

3/ Indian reservations, institutional farms, and other special farms are not included.

Source: 1964 Census of Agriculture General Report, Vol. II, Ch. 6, tables 15 and 16, pp. 642 and 658.

Off-farm income of operators' households varies by States. For all operators and for operators only on the largest farms, such income generally tends to be smaller in the Middle Atlantic, Lake States, and Corn Belt regions than in the rest of the country and to be largest in the Southern Plains (app. tables 17 and 19).

Residence on Farm

Higher specialization of farm production and greatly extended transportation facilities have increasingly enabled farmers to live away from their farms all or most of the year. The proportion of farmers living on their farms has decreased in recent decades. In 1950, 95 percent of all farm operators lived on farms; in 1964, this proportion was 90.5 percent.[15]

The proportion of operators residing on farms was lower on larger farms. While this proportion was 76 percent on farms with sales of $100,000 to $199,999, it was only 42 percent on farms with sales of $1 million or more (table 23).

For the largest farms in their individual groups, no data are available by State on the operator's farm residence. But an analysis of the largest farms as a whole shows that the proportion of farmers not residing

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[15] 1964 Census of Agriculture, Vol. 2, Ch. 5, p. 513.

Table 23.--Operators on farms with sales of $100,000 or more reporting residence on or off their farms, 1964

Size of farm in value of sales	Operators reporting as to residence on farm		Operators not reporting	Operators reporting residence on farm as percentage of operators reporting
	Not on farm	On farm		
	Number	Number	Number	Percent
$1,000,000 or more......	473	340	106	41.8
$500,000-$999,999.......	711	751	112	51.4
$200,000-$499,999.......	2,562	4,885	313	65.6
$100,000-$199,999.......	4,866	15,717	565	76.4
Total.................	8,612	21,693	1,096	71.6
U.S. total...........	290,9[illegible]2	2,773,815	93,071	90.5

Source: Derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

on farms differs greatly by State. For example, in 1964, farmers not residing on their farms accounted for 6 percent of all farm operators in Iowa, 17 percent in California, and more than 24 percent in Florida (fig. 3).

Age of Operator

Except for small farms, no significant difference is found in the age of farm operators by size of farm. In 1964, the average age on small farms was 52 years. This relatively high age is due to the absence of young and middle-aged farmers on these units. More than half the operators on small farms were over 55, and among these, 360,000 were part-retired, with an average age of 71 years.[16] The average age for other sizes of farms ranged from 46 on large farms to 49 on farms with sales of $1 million or more. Farm operators between 35 and 54 accounted for the bulk of farmers on all sizes of farms, except on small units. On the largest farms, the proportions of farmers under 25 and over 55 was somewhat smaller than on medium-sized farms (table 24).

The average age of operators on the largest farms differs slightly by type of farm. In 1964, the age was lowest (46) on the largest cash-grain, cotton, and poultry farms and the largest livestock ranches, and highest (50) on the largest fruit, livestock (other than poultry and dairy), and miscellaneous farms (table 25).

16/ R. Nikolitch, "A Comparison of Age Levels of Farmers and Other Self-Employed Persons," USDA, ERS, Agr. Econ. Rpt. No. 125, Nov. 1967.

Table 24.--Number and percentage distribution of farm operators, by age and by size of farm, 1964 1/

Age of operator	Size of farm in value of sales							
	The largest					Large-- $20,000- $99,999	Medium-- $5,000- $19,999	Small-- Less than $5,000
	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999	Total			
	Number							
All farm operators	919	1,574	7,760	21,148	31,401	370,411	971,710	1,782,157
Operators by age:								
Under 25	4	5	41	147	197	5,301	19,239	28,433
25-34	60	122	768	2,472	3,422	52,541	109,628	143,390
35-44	243	467	2,308	6,392	9,410	110,546	223,874	309,148
45-54	319	518	2,518	6,623	9,978	113,919	294,218	432,525
55-64	226	306	1,466	3,965	5,963	65,816	233,627	436,383
65 and over	67	156	659	1,549	2,431	22,288	91,124	432,278
Average age 2/	49	48	47	47	47	46	48	53
	Percent							
All farm operators	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Operators by age:								
Under 25	0.4	0.3	0.5	0.7	0.6	1.4	2.0	1.6
25-34	6.5	7.8	9.9	11.7	10.9	14.2	11.3	8.0
35-44	26.5	29.7	29.7	30.2	30.0	29.8	23.0	17.3
45-54	34.7	32.9	32.5	31.3	31.8	30.8	30.3	24.3
55-64	24.6	19.4	18.9	18.8	19.0	17.8	24.0	24.5
65 and over	7.3	9.9	8.5	7.3	7.7	6.0	9.4	24.3

1/ Indian reservations, institutional farms, and other special farms are not included.
2/ Estimated on the basis of data on distribution.

Source: Data derived from the 1964 Census of Agriculture, Vol. II, Ch. 6, table 15 and from a special tabulation of the 1964 Census of Agriculture, made available by Bur. of Census.

Table 25.--Estimated average age of farm operators on farms with sales of $100,000 or more, by type of farm, 1964

Type of farm	Average age of operator
Cash-grain	46
Tobacco	49
Cotton	46
Other field crops	47
Vegetable	47
Fruit and nut	50
Poultry	46
Dairy	47
Livestock ranches	46
Other livestock	50
General	47
Miscellaneous	50

Source: Estimated on the basis of data on distribution of operators by age, 1964 Census of Agriculture, Vol. 2, Ch. 6, table 16, pp. 656 and 657.

The average age of farm operators on farms with sales of $100,000 or more differs also by State and region. The age is highest in New England, West Virginia, Wyoming, Florida, Montana, and Hawaii, and lowest in the Lake States, Corn Belt, and Northern Plains (fig. 4).17/

Educational Attainment

Farmers' educational attainment seems to be related to farm size. The proportion of operators with education is greatest on smaller farms. In 1964, operators with 8 years of school or less accounted for 56 percent of all operators on small farms, 45 percent on medium-sized farms, and 28 percent on large farms, but only 20 percent on the largest farms. On the other hand, operators with 4 years of college accounted for 4 percent of all operators on both small and medium-sized farms and 7 percent on large farms, but 17 percent on the largest farms (table 26).

In 1964, the average level of schooling for all farmers was 11 years for operators under 35, 10.2 for operators between 35 and 44, 9.4 years for those between 45 and 54, 8.7 for those between 55 and 64, and 8.1 for operators 65 and over. But the fact that younger farmers had more education could not explain that those working on farms above the medium-size had the highest educational attainment. As shown in table 24, operators on larger farms are not younger than those on smaller farms. Neither could a comparison by States, age, and educational attainment of operators on commercial farms explain the difference in educational attainment (app. table 20).

17/ For regional differences in average age of operators, see app. table 48.

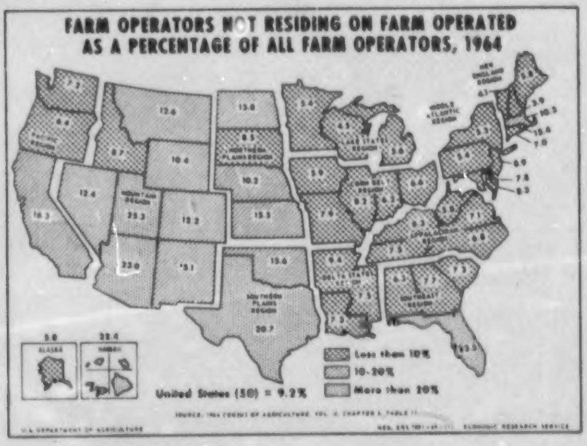
FARM OPERATORS NOT RESIDING ON FARM OPERATED
AS A PERCENTAGE OF ALL FARM OPERATORS, 1964
PACIFIC REGION
MOUNTAIN REGION
NORTHERN PLAINS REGION
SOUTHERN PLAINS REGION
LAKE STATES REGION
CORN BELT REGION
DELTA STATES REGION
APPALACHIAN REGION
SOUTHEAST REGION
MIDDLE ATLANTIC REGION
NEW ENGLAND REGION
12.6
13.8
10.4
10.2
12.4
10.3
12.2
15.5
15.6
20.7
ALASKA
HAWAII
Less than 10%
10-20%
More than 20%
United States (50) = 9.2%

Figure 3

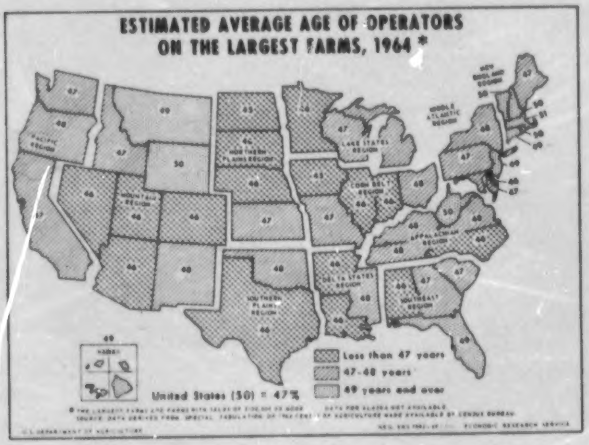
ESTIMATED AVERAGE AGE OF OPERATORS
ON THE LARGEST FARMS, 1964 *
PACIFIC REGION
MOUNTAIN REGION
NORTHERN PLAINS REGION
SOUTHERN PLAINS REGION
LAKE STATES REGION
CORN BELT REGION
DELTA STATES REGION
APPALACHIAN REGION
SOUTHEAST REGION
MIDDLE ATLANTIC REGION
NEW ENGLAND REGION
HAWAII
Less than 47 years
47-48 years
49 years and over
United States (50) = 47%

Figure 4

Table 26.--Number and percentage distribution of farm operators of all farms by size of farm and by highest grade of school completed, 1964

Highest grade of school completed	Operators on all farms 1/		Operators by size of farm 2/							
			The largest		Large		Medium		Small	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
All operators	3,155,679	100.0	31,401	100.0	370,411	100.0	971,710	100.0	1,782,157	100.0
Elementary school:										
0-4 years	225,130	7.1	498	1.6	5,927	1.6	36,925	3.8	181,780	10.2
5-7 years	465,550	14.8	1,784	5.7	22,965	6.2	103,973	10.7	336,828	18.9
8 years	851,131	26.9	4,123	13.1	73,341	19.8	292,485	30.1	481,182	27.0
High school:										
1-3 years	535,507	17.0	4,541	14.5	62,970	17.0	163,247	16.8	304,749	17.1
4 years	762,110	24.2	10,438	33.2	142,608	38.5	284,711	29.3	324,353	18.2
College:										
1-3 years	178,833	5.6	4,796	15.3	36,671	9.9	55,387	5.7	81,979	4.6
4 years	137,418	4.4	5,221	16.6	25,929	7.0	34,982	3.6	71,286	4.0
Average grade completed	9.4		11.5		10.7		9.7		8.8	

1/ Indian reservations, institutional farms, and other special farms are not included.
2/ Farm sizes are measured as follows: The largest--$100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

Source: Derived from the 1964 Census of Agriculture Vol. II, Ch. 6, tables 15 and 16. Figures on large, medium, and small farms were adjusted to add to the total number of all operators in each size-group of farms.

FAMILY FARMS

Though the total number of farms was reduced markedly from 1949 to 1964, the proportion that were family farms remained about the same in that period, and their share of marketings changed little. 18/ In 1964, family farms accounted for 95 percent of all farms and 64 percent of the value of all farm products sold. Measured in constant dollars, these proportions were 95 and 69 percent in 1959, and 95 and 63 percent in 1949.

An analysis by size of farm from 1959 to 1964 shows that the proportions of family farms and their marketings increased for all farm sizes, including the largest farms. In 1959, 11 percent of these farms were family farms, accounting for 7 percent of total sales of the largest farms. In 1964, 14.5 percent of the largest farms were family farms, accounting for 8.4 percent of total sales by the largest farms.

The proportions of the number and sales of family-operated farms did not change significantly on small-sized farms. Large family farms expanded considerably from 1959 to 1964 (table 27).

The economic importance of family farms varies greatly by State and region. Family farms are most dominant in the North Central part of the country, as well as in some of the Middle Atlantic and South Central States. In California, Texas, Florida, and a few other States, on the contrary, family farms provide less than half of total farm sales (app. table 21).

The importance of family farms among the largest farms also varies greatly by State. This pattern generally follows the pattern of State and regional differences for all family-operated farms (see app. table 21). Thus, in Iowa, where family-operated units accounted for 91 percent of all farm marketings in 1964, family-operated farms provided more than 45 percent of total marketings by the largest farms. In California, on the contrary, where family-operated units accounted for only 21 percent of all farm marketings, family-operated units accounted for less than 4 percent of total marketings by the largest farms (fig. 5).

Rapid increases in farm technology have increased the quantity of land and other inputs a man can handle per unit of time. In turn, technological changes have greatly expanded the size of a farm business that can be operated by a family. The economic importance of family-operated units among the largest farms, in the greater part of the United States, indicates the capacity of operators to adjust their family operations to large-scale farming.

18/ The essential characteristic of a family farm is not found in the size of its sales, acreage, or capital investment, but in the degree to which productive effort and its reward are vested in the family. The family farm is an agricultural business in which the operator is a risk-taking manager who, with his family, does more than half of the farm work. Statistical information on hired labor is ample and adequate, but very little data is available on operator and family labor. However, the family labor supply on the average farm is estimated to be about 1.5 man-years. To have a convenient working definition, we classify farms not using hired management and using less than 1.5 man-years of hired labor as family farms, and those using more than 1.5 man-years of hired labor or hired management or both as larger-than-family farms.

Table 27.—Number and sales of family farms and larger-than-family farms as a percentage of total for all farms, by size of farm, 1959 and 1964 1/

Size of farm 2/	Number of farms as a percentage of total		Sales as a percentage of total	
	Family farms 3/	Larger-than-family farms 3/	Family farms 3/	Larger-than-family farms 3/
	Percent			
1959:				
Largest	10.8	89.2	7.0	93.0
Large	68.0	32.0	60.8	39.2
Medium	95.8	4.2	94.3	5.7
Small	99.7	0.3	99.5	0.5
Total	95.5	4.5	69.6	30.4
1964:				
Largest	14.5	85.5	8.4	91.6
Large	74.8	25.2	67.9	32.1
Medium	97.0	3.0	96.5	3.5
Small	99.8	0.2	99.7	0.3
Total	95.1	4.9	64.6	35.4

1/ Alaska and Hawaii are not included. Indian reservations, institutional farms, and other special farms are also not included.

2/ Farm sizes are measured as follows: The largest--$100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

3/ For definition, see text, footnote 18.

Source: Data derived from special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

EFFICIENCY ON THE LARGEST FARMS

Studies and information are lacking on the economic and technical efficiency of the largest farms. However, information from the 1964 Census of Agriculture would suggest a greater technical efficiency on these farms. Thus, we find on the largest farms a greater use of fertilizers, as well as a greater yield of production per animal and crops per acre (table 28).

Table 28.--Physical efficiency measures on farms, by size of farm, 1964

Physical efficiency measure	Unit	All commercial farms	Size of farm in value of sales				
			Total, $100,000 or more	$100,000-$199,999	$200,000-$499,999	$500,000-$999,999	$1,000,000 or more
Cropland harvested per tractor (other than garden tractors)	Acres	68	113	110	110	116	142
Corn harvested per cornpicker	do.	80	204	NA	NA	NA	NA
Hay harvested per pickup baler	Tons	170	901	NA	NA	NA	NA
Regular hired workers per farm	Number	3	10	5	12	29	86
Percentage of farms reporting use of:							
Commercial fertilizer	Percent	75.6	77.9	78.6	77.5	76.2	69.0
Wheel tractors	do.	83.9	92.9	92.2	93.8	95.7	96.0
Crawler tractors	do.	5.6	35.8	30.0	44.5	54.2	66.2
Combines (grain and bean)	do.	35.6	36.7	40.1	32.0	23.6	18.2
Motortrucks (including pickups)	do.	74.8	95.2	94.5	96.2	97.6	98.3
Fertilizer used per acre fertilized:	Pounds	306	460	370	468	561	689
Value of products sold:							
Milk and cream per milk cow	Dollars	328	560	NA	NA	NA	NA
Eggs per chicken 6 months old and over	do.	4.39	5.39	NA	NA	NA	NA
Vegetables per acre	do.	301	447	325	360	503	681
Nursery products per acre	do.	NA	1,635	1,742	1,590	1,729	1,491
Yield per acre:							
Corn harvested for grain	Bushels	63	78	NA	NA	NA	NA
Soybeans harvested for beans	do.	23	22	22	21	22	24
Wheat	do.	25	31	NA	NA	NA	NA
Alfalfa harvested for hay or dehydrating	Tons	2.5	4.4	4.0	4.6	4.9	5.3
Clover and timothy hay	do.	1.5	1.6	1.6	1.6	1.4	2.0
Irish potatoes	Bushels	317	362	NA	NA	NA	NA
Cotton	Bales	1.1	1.7	1.5	1.8	1.9	2.6
Sugarbeets	Tons	NA	19.9	19.0	20.4	20.5	20.8

Source: Data derived from special tabulation of the 1964 Census of Agriculture made available by Bur. of Census, and from the 1964 Census of Agriculture, Vol. II, Ch. 6, table 15.

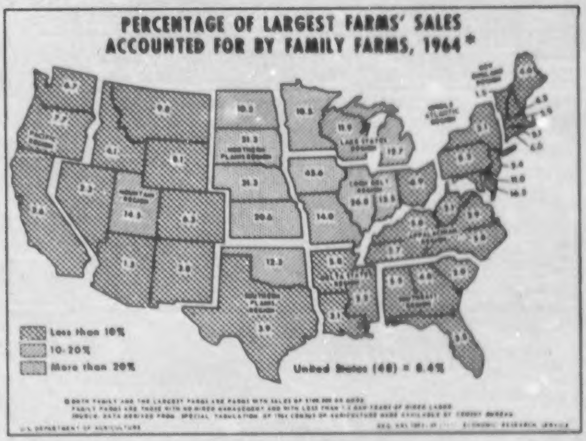
PERCENTAGE OF LARGEST FARMS' SALES ACCOUNTED FOR BY FAMILY FARMS, 1964*
Less than 10%
10-20%
More than 20%
United States (48) = 8.4%
U.S. DEPARTMENT OF AGRICULTURE
ECONOMIC RESEARCH SERVICE

Figure 5

CONCLUSIONS

The information and analysis presented in this report do not fully answer questions raised in the introduction about the future of the largest farms.

However, the information and analysis presented do indicate that large-scale farming has still not extensively penetrated the organization of our farm production. Nonetheless, in some types of production and in some regions, this penetration has been considerable.

As for the future, empirical observation does not indicate any conclusive trend particular to the largest farms. They are increasing in size and number, as do all other adequately sized groups of farms under the impacts of new technological, economic, and social developments.

In the general race toward larger business size, the number of farms with sales of $100,000 or more probably reached 40,000 in 1969, and their gross sales accounted for at least one-third of total sales by all farms. Such expansion of large-scale farming is believed to be centering in about the same geographic areas, and in the same kinds of crop and livestock production as indicated by data in this report.

APPENDIX

Appendix table 1.--Farm and interfarm sales, and interfarm sales as a percentage of all farm sales, by size of farm, 1964 1/

Size of farm in value of sales	Number of farms	Farm sales		Interfarm sales		Interfarm sales as a percentage of all farm sales
		Total	Per farm 2/	Total	Per farm 2/	
	Thousands	Million dollars	1,000 dollars	Million dollars	1,000 dollars	Percent
The largest farms:						
$1,000,000 or more	1	2,367	2,576	854	929	36
$500,000-$999,999	1	1,067	678	280	178	26
$200,000-$499,999	8	2,253	290	521	67	23
$100,000-$199,999	21	2,852	135	646	31	23
Total	31	8,539	272	2,301	73	27
Large:						
$40,000-$99,999	111	6,476	59	1,368	12	21
$20,000-$39,999	260	7,116	27	1,259	5	18
Medium:						
$10,000-$19,999	467	6,616	14	939	2	14
$5,000-$9,999	505	3,653	7	473	1	13
Small:						
$2,500-$4,999	444	1,611	4	218	4/	14
Less than $2,500	1,338	1,143	1	287	4/	25
Abnormal 3/	2	146	67	22	10	15
All farms	3,150	35,294	11	6,866	2	19

1/ Estimated by assuming that of the total value of all feed bought by farmers, 50 percent was accounted for by interfarm sales; of the total value of all seed bought, 53 percent was accounted for by interfarm sales; and 90 percent of all livestock bought by farmers was through interfarm trade.

2/ Averages computed before figures were rounded.

3/ Abnormal farms are Indian reservations, institutional farms, and other special farms.

4/ Sales less than $500.

Source: Data derived from the 1964 Census of Agriculture, Vol. II, Ch. 6 and from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 2.--Estimated number and value of all cattle slaughtered and of cattle marketed from feedlots of 1,000 head or more, and estimated value of net agricultural output on feedlots with 1,000 head or more, 1962-64

Year	All cattle slaughtered		Cattle marketed from feedlots of 1,000 head or more			Net agricultural output on feedlots with 1,000 head or more 4/	
	Number 1/	Value 2/	Number 3/	Value 2/	Value as a percentage of value of all cattle slaughtered	Value	Value as a percentage of value of all cattle slaughtered
	1,000 head	Million dollars	1,000 head	Million dollars	Percent	Million dollars	Percent
1962..........	26,905	6,181	5,316	1,221	19.8	89.1	7.3
1963..........	28,604	6,040	5,840	1,257	20.8	91.8	7.3
1964..........	31,666	6,341	6,740	1,350	20.0	98.6	7.3

1/ As reported in 1965 supplement to Stat. Bul. 333, U.S. Dept. Agr., Aug. 1966, table 86, p. 64.

2/ Estimated on the basis of average weight and average price for slaughtered cattle, as reported in 1965 supplement to Stat. Bul. 333, U.S. Dept. Agr., Aug. 1966, table 120, p. 86 and table 15a, p. 108.

3/ Based on 28 States as reported in "Number of cattle on feedlots, 1962-1964," SRS-9, U.S. Dept. Agr., June 1966.

4/ Net agricultural output equals here the price of slaughtered cattle minus the value of purchased feeder steers and feed cost. Derived from an illustrative estimation by Econ. Res. Serv., Livestock and Meat Situation-145, U.S. Dept. Agr., Oct. 1965, p. 38.

Appendix table 3.--Number and sales of farms with sales of $100,000 or more, specified size, and by geographic region, 1964

Size of farm in value of sales	North			South			West			Percentage of farms by region		
	Farms	Total sales	Sales per farm	Farms	Total sales	Sales per farm	Farms	Total sales	Sales per farm	North	South	West
	Number	Billion dollars	1,000 dollars	Number	Billion dollars	1,000 dollars	Number	Billion dollars	1,000 dollars	-------Percent-------		
$1,000,000 or more...	166	.4	2,155.6	229	.5	2,375.4	524	1.5	2,796.3	18	25	57
$500,000-$999,999.....	369	.3	668.6	478	.3	679.4	727	.5	681.2	24	30	46
$200,000-$499,999.....	2,043	.5	282.9	2,485	.7	289.6	3,232	1.0	295.6	26	32	42
$100,000-$199,999.....	7,106	.9	133.2	7,129	1.0	134.0	6,913	.9	137.5	33	34	33
Total..............	9,684	2.1	219.8	10,321	2.5	246.4	11,396	3.9	339.3	31	33	36

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 4.--Average value of farm products sold by farms with sales of $100,000 or more, by State, 1964

Region and State	Average value of farm products sold	Region and State	Average value of farm products sold
	1,000 dollars		1,000 dollars
New England:		Southeast:	
Maine	178	South Carolina	180
New Hampshire	197	Georgia	215
Vermont	185	Florida	406
Massachusetts	251	Alabama	199
Rhode Island	198	Delta States:	
Connecticut	341	Mississippi	202
Middle Atlantic:		Arkansas	189
New York	202	Louisiana	177
New Jersey	212	Southern Plains:	
Pennsylvania	214	Oklahoma	300
Delaware	225	Texas	248
Maryland	197	Mountain:	
Lake States:		Montana	212
Michigan	180	Idaho	281
Wisconsin	217	Wyoming	195
Minnesota	201	Colorado	382
Corn Belt:		New Mexico	284
Ohio	207	Arizona	436
Indiana	207	Utah	251
Illinois	181	Nevada	248
Iowa	181	Pacific:	
Missouri	197	Washington	256
Northern Plains:		Oregon	224
North Dakota	195	California	342
South Dakota	225	Alaska	1/
Nebraska	304	Hawaii	1,227
Kansas	319		
Appalachian:			
Virginia	220		
West Virginia	244		
North Carolina	195		
Kentucky	233		
Tennessee	203		

1/ Data for Alaska included in Washington to avoid disclosure of individual operations.

Appendix table 5.--Number and sales of farms with sales of $100,000 or more, by specified size and their percentage of total farms in each size group, by type of farm, 1964

Type of farm	Value of sales									
	Total, $100,000 or more		$1,000,000 and over		$500,000-$999,999		$200,000-$499,999		$100,000-$199,999	
	Farms	Sales	Farms	Sales	Farms	Sales	Farms	Sales	Farms	Sales
	Number	Million dollars[1]	Number	Million dollars	Number	Million dollars	Number	Million dollars	Number	Million dollars
Cash-grain	2,141	351.6	5	7.4	29	19.0	345	96.5	1,762	228.7
Tobacco	102	44.2	11	23.9	7	4.8	27	7.8	57	7.7
Cotton	3,465	762.1	36	111.2	112	74.7	847	242.8	2,470	333.4
Other field crops	2,237	633.2	68	208.0	83	56.5	560	160.3	1,526	208.4
Vegetables	1,590	574.5	94	195.5	158	109.3	521	157.2	817	112.5
Fruit and nut	2,511	753.7	93	215.4	168	113.8	711	212.9	1,539	211.6
Poultry	4,744	1,108.8	89	165.8	224	153.2	1,212	354.2	3,219	435.6
Dairy	2,576	529.7	19	37.5	93	65.2	609	174.2	1,855	252.8
Livestock (other than poultry and dairy farms and livestock ranches)	6,692	2,223.5	322	948.2	368	250.9	1,436	413.2	4,566	611.2
Livestock ranches	1,815	655.3	81	277.7	117	80.0	485	145.0	1,132	152.6
General	1,886	480.1	53	105.6	90	59.7	504	145.9	1,237	168.9
Miscellaneous	1,644	422.1	48	70.8	125	79.6	503	142.8	968	128.9
Total	31,401	8,538.8	919	2,367.0	1,574	1,066.7	7,760	2,252.8	21,148	2,852.3
	Number and sales as a percentage of total farms in each size group									
Cash-grain	6.8	4.1	0.5	0.3	1.9	1.8	4.4	4.3	8.3	8.0
Tobacco	0.3	0.5	1.2	1.0	0.4	0.4	0.3	0.4	0.3	0.3
Cotton	11.1	8.9	3.9	4.7	7.1	7.0	10.9	10.8	11.7	11.7
Other field crops	7.1	7.4	7.4	8.8	5.3	5.3	7.2	7.1	7.2	7.3
Vegetables	5.1	6.7	10.2	8.3	10.1	10.2	6.7	7.0	3.9	3.9
Fruit and nut	8.0	8.8	10.2	9.1	10.7	10.7	9.2	9.5	7.3	7.4
Poultry	15.1	13.0	9.7	7.0	14.2	14.6	15.6	15.7	15.2	15.3
Dairy	8.2	6.2	2.1	1.6	5.9	6.1	7.9	7.7	8.8	8.9
Livestock (other than poultry and dairy farms and livestock ranches)	21.3	26.1	35.0	40.0	23.4	23.5	18.5	18.3	21.6	21.4
Livestock ranches	5.8	7.7	8.8	11.7	7.4	7.5	6.3	6.4	5.3	5.4
General	6.0	5.6	5.8	4.5	5.7	5.6	6.5	6.5	5.8	5.9
Miscellaneous	5.2	5.0	5.2	3.0	7.9	7.5	6.5	6.3	4.6	4.5

[1] Total includes sales of recreation facilities.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 6.--Number of farms with sales of $100,000 or more, and their percentage of all farms, by type of farm, 1929, 1959, and 1964

Type of farm	Number of farms			As a percentage of 1959 total			As a percentage of all farms	
	1929	1959	1964	1929	1959	1964	1959	1964
	No.	No.	No.	Pct.	Pct.	Pct.	Pct.	Pct.
Cash-grain	100	1,179	2,141	8	100	182	0.3	0.4
Tobacco	54	68	102	79	100	150	1/	1/
Cotton	102	2,990	3,465	3	100	116	1.1	1.7
Other field crops	142	888	2,237	16	100	252	2.3	5.4
Vegetable	231	1,049	1,590	22	100	152	4.8	4.5
Fruit and nuts	376	1,693	2,511	22	100	148	2.8	2.9
Poultry	43	2,000	4,744	2	100	237	1.9	4.5
Dairy	200	1,755	2,576	11	100	147	.4	.6
Livestock (other than dairy and poultry)	1,081	6,156	8,507	18	100	138	.9	.9
General	12	931	1,884	1	100	202	.4	.7
All other	79	1,270	1,644	6	100	129	.1	.6
Total	2,420	19,979	31,401	12	100	157	.5	1.0

1/ Less than 0.05 percent.

Source: 1959 Census of Agriculture, Vol. 5, part 7 and Vol. II, Ch. 11, and 1964 Census of Agriculture, Vol. II, Ch. 6, table 16.

Appendix table 7.--Farms by specified value of sales and average sales by type of farm, 1964

Type of farm	Farms with sales of $100,000 or more		Farms with sales of $1,000,000 or more	
	Total farms	Sales per farm	Total farms	Sales per farm
	Number	1,000 dollars	Number	1,000 dollars
Cash-grain	2,141	164	5	1,481
Tobacco	102	434	11	2,174
Cotton	3,465	220	36	3,089
Other field crops	2,237	283	68	3,059
Vegetable	1,590	361	94	2,079
Fruit and nut	2,511	300	93	2,316
Poultry	4,744	234	89	1,864
Dairy	2,576	206	19	1,975
Livestock (other than poultry and dairy farms and livestock ranches)	6,692	332	382	2,945
Livestock ranches	1,815	361	81	3,429
General	1,884	255	53	1,992
Miscellaneous	1,644	257	68	1,475
Total	31,401	272	919	2,576

Source: Data derived from special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 8.--Regional distribution of number and sales of farms with sales of $100,000 or more, by specified size and by type of farm, 1964

Type of farm	Regional distribution of farms with sales of--											
	$1,000,000 or more			$500,000-$999,999			$200,000-$499,999			$100,000-$199,999		
	North	South	West	North	South	West	North	South	West	North	South	West
	Percent											
All farms	18	25	57	23	31	46	26	32	42	33	34	33
Cash-grain	---	---	100	3	35	62	10	46	44	21	52	27
Tobacco	100	---	---	86	14	---	52	48	---	16	84	---
Cotton	---	11	89	---	45	55	1	63	36	2	74	24
Other field crops	7	13	80	31	24	45	39	17	44	45	18	37
Vegetable	2	33	65	11	29	60	13	24	63	18	23	59
Fruit and nut	1	58	41	4	44	52	9	32	59	15	26	59
Poultry	21	43	36	27	44	29	31	47	22	34	47	19
Dairy	10	37	53	5	32	63	7	24	69	14	26	60
Livestock farms 1/	31	16	53	48	16	36	63	15	22	78	9	13
Livestock ranches	6	25	69	10	40	50	9	32	59	11	31	58
General	---	4	96	7	10	83	5	20	75	12	34	54
Miscellaneous	44	27	29	41	28	31	46	26	28	46	28	26
	Percentage distribution of sales											
	Percent											
All farms	15	23	62	23	31	46	26	32	42	33	36	33
Cash-grain	---	---	100	2/	2/	62	2/	2/	45	20	52	28
Tobacco	100	---	---	2/	2/	---	2/	2/	---	18	82	---
Cotton	---	4	96	---	43	57	1	62	37	2	74	24
Other field crops	4	15	81	31	23	46	39	17	44	45	17	38
Vegetable	2/	2/	64	2/	2/	60	12	24	64	18	23	59
Fruit and nut	2/	2/	34	2/	2/	51	9	33	58	15	26	59
Poultry	16	46	38	26	45	29	31	48	21	34	47	19
Dairy	2/	2/	2/	2/	2/	2/	7	24	69	13	26	61
Livestock farms 1/	27	14	59	48	18	36	63	15	22	77	9	14
Livestock ranches	3	18	79	10	39	51	9	32	59	12	30	58
General	---	2/	2/	6	2/	2/	5	19	76	11	33	56
Miscellaneous	44	24	32	41	29	30	45	26	29	45	28	27

1/ Livestock other than poultry and dairy farms and livestock ranches.
2/ Data withheld to avoid disclosure of individual operations.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 9.--Number and sales of farms with sales of $100,000 or more by specified size and as a percentage of total for all commercial farms, by type of farm, North, 1964

Type of farm	Commercial farms, North		The largest farms as a percentage of all commercial farms in the North				
			Total, $100,000 or more	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Farms	1,137,087	100.0	0.9	1/	1/	0.2	0.7
Cash-grain	309,860	100.0	0.1	---	1/	1/	0.1
Tobacco	3,221	100.0	1.2	0.3	0.2	0.4	0.3
Cotton	3,484	100.0	1.3	---	---	0.2	1.1
Other field crops	7,996	100.0	11.8	0.1	0.3	2.8	9.6
Vegetable	9,005	100.0	2.6	1/	0.2	0.7	1.7
Fruit and nut	12,236	100.0	2.5	1/	0.1	0.5	1.9
Poultry	28,884	100.0	5.3	0.1	0.2	1.3	3.7
Dairy	286,765	100.0	0.1	1/	1/	1/	0.1
Livestock (other than poultry and dairy farms and livestock ranches)	342,499	100.0	1.4	1/	0.1	0.3	1.0
Livestock ranches	6,377	100.0	3.0	0.1	0.2	0.7	2.0
General	98,840	100.0	0.2	---	1/	1/	0.2
Miscellaneous	27,920	100.0	2.7	0.1	0.2	0.8	1.6
	Sales		Sales as a percentage of all commercial farms in the North				
	Million dollars	Percent	Percent	Percent	Percent	Percent	Percent
Farms	17,042	100.0	12.5	2.1	1.4	3.4	5.6
Cash-grain	3,882	100.0	1.4	---	2/	2/	1.2
Tobacco	48	100.0	71.0	49.7	2/	2/	2.9
Cotton	64	100.0	10.5	---	---	2.6	7.9
Other field crops	405	100.0	44.7	1.9	4.3	15.4	23.1
Vegetable	176	100.0	30.1	2/	2/	10.7	11.6
Fruit and nut	235	100.0	24.1	2/	2/	7.9	13.5
Poultry	906	100.0	35.5	3.0	4.3	12.8	16.2
Dairy	3,631	100.0	1.4	2/	2/	0.3	0.9
Livestock farms (other than poultry and dairy farms and livestock ranches)	6,034	100.0	18.3	4.2	2.0	4.3	7.8
Livestock ranches	134	100.0	35.6	6.1	6.1	10.6	13.4
General	1,065	100.0	2.7	---	0.4	0.6	1.7
Miscellaneous	462	100.0	40.4	6.8	7.1	13.9	12.6

1/ Less than 0.05 percent.

2/ Data withheld to avoid disclosure of individual operations.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 10.--Number and sales of farms with sales of $100,000 or more, by specified size and as a percentage of total for all commercial farms, by type of farm, South, 1964

Type of farm	Commercial farms, South		The largest farms as a percentage of all commercial farms in the South				
			Total, $100,000 or more	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Farms	819,849	100.0	1.3	1/	0.1	0.3	0.9
Cash-grain	66,438	100.0	1.6	---	1/	0.2	1.6
Tobacco	168,163	100.0	1/	1/	1/	1/	1/
Cotton	154,336	100.0	1.6	1/	1/	0.4	1.2
Other field crops	18,184	100.0	2.2	0.1	0.1	0.5	1.5
Vegetable	9,137	100.0	4.3	0.3	0.5	1.4	2.1
Fruit and nut	12,595	100.0	6.0	0.4	0.6	1.8	3.2
Poultry	46,998	100.0	4.7	0.1	0.2	1.2	3.2
Dairy	57,982	100.0	1.2	1/	0.1	0.3	0.8
Livestock farms (other than poultry and dairy farms and livestock ranches)	133,465	100.0	0.5	1/	1/	0.2	0.3
Livestock ranches	34,573	100.0	1.7	0.1	0.1	0.5	1.0
General	78,779	100.0	0.7	1/	1/	0.1	0.6
Miscellaneous	39,219	100.0	1.1	1/	0.1	0.3	0.7
	Sales		Sales as a percentage of all commercial farms in the South				
	Million dollars	Percent	Percent	Percent	Percent	Percent	Percent
Farms	10,149	100.0	25.1	5.4	3.2	7.1	9.4
Cash-grain	1,007	100.0	16.9	---	2/	2/	11.8
Tobacco	1,071	100.0	0.9	---	2/	2/	0.5
Cotton	1,903	100.0	22.9	0.2	1.7	8.0	13.0
Other field crops	323	100.0	33.6	9.8	4.1	8.4	11.3
Vegetable	228	100.0	71.5	2/	2/	16.2	11.3
Fruit and nut	477	100.0	66.5	2/	2/	14.7	11.7
Poultry	1,596	100.0	32.6	4.8	4.3	10.6	12.9
Dairy	980	100.0	15.0	2/	2/	4.3	6.7
Livestock farms (other than poultry and dairy farms and livestock ranches)	1,001	100.0	29.4	13.6	3.9	6.3	5.6
Livestock ranches	470	100.0	36.9	10.6	6.7	9.7	[illegible]
General	835	100.0	10.9	2/	2/	3.3	[illegible]
Miscellaneous	338	100.0	44.1	6.6	8.8	14.7	14.0

1/ Less than 0.05 percent.
2/ Data withheld to avoid disclosure of individual operations.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur of Census.

Appendix table 11.—Number and sales of farms with sales of $100,000 or more, by specified size and as a percentage of total for all commercial farms, by type of farm, West, 1964

Type of farm	Commercial farms, West		The largest farms as a percentage of all commercial farms in the West				
			Total, $100,000 or more	$1,000,000 or more	$500,000-$999,999	$200,000-$499,999	$100,000-$199,999
	Number	Percent	Percent	Percent	Percent	Percent	Percent
Farms	208,776	100.0	5.5	0.3	0.3	1.6	3.3
Cash-grain	27,955	100.0	2.3	1/	0.1	0.5	1.7
Tobacco	---	---	---	---	---	---	---
Cotton	6,256	100.0	15.7	0.5	1.0	4.8	9.6
Other field crops	8,950	100.0	10.1	0.6	0.4	2.8	6.3
Vegetable	5,065	100.0	19.0	1.2	1.9	6.5	9.4
Fruit and nut	32,425	100.0	4.5	0.1	0.3	1.3	2.8
Poultry	6,238	100.0	15.6	0.5	1.1	4.2	9.8
Dairy	22,220	100.0	7.2	1/	0.3	1.9	5.0
Livestock farms (other than poultry and dairy farms and livestock ranches)	38,585	100.0	3.1	0.4	0.3	0.8	1.6
Livestock ranches	25,332	100.0	4.2	0.2	0.3	1.1	2.6
General	24,361	100.0	4.8	0.2	0.3	1.5	2.8
Miscellaneous	11,389	100.0	3.9	0.1	0.3	1.2	2.3
	Sales		Sales as a percentage of all commercial farms in the West				
	Million dollars	Percent	Percent	Percent	Percent	Percent	Percent
Farms	7,178	100.0	53.9	20.4	6.9	13.3	13.3
Cash-grain	617	100.0	20.3	1.2	1.9	7.0	10.2
Tobacco	---	---	---	---	---	---	---
Cotton	467	100.0	68.6	22.8	9.2	19.2	17.4
Other field crops	561	100.0	61.3	30.1	4.6	12.6	14.0
Vegetable	453	100.0	79.1	27.7	14.4	22.3	14.7
Fruit and nut	904	100.0	42.1	8.2	6.4	13.8	13.7
Poultry	417	100.0	64.2	15.1	10.7	18.2	20.2
Dairy	744	100.0	44.4	2/	2/	16.1	20.7
Livestock farms (other than poultry and dairy farms and livestock ranches)	1,260	100.0	65.5	44.4	7.2	7.3	6.6
Livestock ranches	806	100.0	53.8	27.2	5.0	10.7	10.9
General	721	100.0	49.9	2/	2/	15.4	13.2
Miscellaneous	228	100.0	53.4	9.8	10.6	17.9	15.1

1/ Less than 0.05 percent.
2/ Data withheld to avoid disclosure of individual operations.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 12.--Average sales of farms with sales of $100,000 or more, by type of farm and by geographic region, 1964

Type of farm	Average sales in North		Average sales in South		Average sales in West	
	Farms with sales of $100,000 or more	Farms with sales of $1,000,000 or more	Farms with sales of $100,000 or more	Farms with sales of $1,000,000 or more	Farms with sales of $100,000 or more	Farms with sales of $1,000,000 or more
	1,000 dollars					
All farms	220	2,156	246	2,375	339	2,795
Cash-grain	137	---	157	---	194	1,481
Tobacco	853	2,174	163	---	---	---
Cotton	150	---	179	1,232	325	3,321
Other field crops	193	1,585	274	3,507	382	3,121
Vegetable	223	1/	418	1/	372	2,056
Fruit and nut	184	1/	421	1/	262	1,941
Poultry	208	1,422	233	2,003	275	1,960
Dairy	169	1/	219	1/	207	1/
Livestock ranches	247	1,627	304	2,498	413	3,922
Other livestock	233	2,523	398	2,677	683	3,271
General	169	---	170	1/	306	1/
Miscellaneous	251	1,497	252	1,304	272	1,600

1/ Data withheld to avoid disclosure of individual operations.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 13.--Sales or production of farms with sales of $100,000 or more, reporting specified products sold, as a percentage of total for all farms, 1959 and 1964

Specified product	Unit of production or sales	Production or sales as a percentage of total for all farms	
		1959	1964
		Percent	
Livestock and poultry sold alive, and their products sold:			
Cattle and calves	Dollar sales	22.7	32.8
Hogs and pigs	do.	1.9	4.7
Sheep and lambs	do.	15.7	29.5
Chickens including broilers	do.	14.8	23.3
Whole milk	do.	7.4	10.7
Eggs	do.	10.1	36.8
Specified crops:			
Corn for grain	Bushels harvested	1.8	3.8
Wheat	do.	NA	5.6
Oats	do.	NA	2.7
Barley	do.	NA	20.0
Sorghum for grain or seed	do.	NA	14.4
Rice	do.	NA	40.8
Soybeans	do.	NA	7.0
Potatoes	do.	25.5	53.0
Cotton	Bales harvested	NA	29.9
Tobacco	Pounds harvested	NA	2.0
Vegetables	Dollar sales	49.3	60.9
Fruits and nuts	do.	31.0	46.0

NA = Not available.

Source: 1959 Census of Agriculture, Vol. I, Ch. 11 and Vol. 5, part 7, and 1964 Census of Agriculture, Vol. II, Ch. 6.

Appendix table 14.--Number and percentage distribution of farms with sales of $100,000 or more, by specified size in value of sales and by acreage, 1964

Size of farm in value of sales	Farms reporting acreage of—								
	Less than 10	10-69	70-139	140-259	260-499	500-999	1,000-1,999	2,000 or more	Total farms
					Number				
$1,000,000 or more	1	75	74	60	56	70	141	442	919
$500,000-$999,999	17	144	72	97	118	282	266	578	1,574
$200,000-$499,999	146	773	345	546	950	1,441	1,428	2,131	7,760
$100,000-$199,999	674	1,895	1,066	1,978	3,527	4,343	3,927	3,738	21,148
Total	838	2,887	1,557	2,681	4,651	6,136	5,762	6,889	31,401
				Percentage distribution					
					Percent				
$1,000,000 or more	0.1	8.2	8.1	6.5	6.1	7.6	15.3	48.1	100.0
$500,000-$999,999	1.1	9.1	4.6	6.2	7.5	17.9	16.9	36.7	100.0
$200,000-$499,999	1.9	10.0	4.4	7.0	12.2	18.6	18.4	27.5	100.0
$100,000-$199,999	3.2	9.0	5.0	9.3	16.7	20.5	18.6	17.7	100.0
Total	2.7	9.2	5.0	8.5	14.8	19.5	18.4	21.9	100.0

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

Appendix table 15.--Tenure under which farmland was operated, all farms, specified years, 1944-64

Year	Total farmland 1/	Percentage of farmland operated under--2/		
		Ownership	Rental	Paid management
	Million acres	Percent		
1944 3/	1,142	53	38	9
1949	1,161	56	35	9
1954 3/	1,160	56	35	9
1959	1,123	55	35	10
1964	1,110	54	4/ 36	10

1/ Except for 1944, totals for the 3 kinds of tenures were estimated by assuming that part owners(included in both ownership and rental) did not subrent their rented land.

2/ Computed before rounding numbers.

3/ Alaska and Hawaii not included.

4/ Estimated by subtracting acreages operated by owners and managers from total acreage.

Source: 1964 Census of Agriculture, Vol. II, Ch. 8, table 2, p. 754.

Appendix table 16.--Nonfarmwork of farm operators on farms with sales of $100,000 or more, by State, 1964

Region and State	Operators	Nonfarmwork of farm operator			
		Operators reporting 1/	Days worked on nonfarm jobs	Average days worked by--	
				Operators reporting 1/	All operators
	Number	Percent	Days	Days	Days
United States	31,401	16	720,135	142	23
New England:					
Maine	439	22	11,346	116	26
New Hampshire	42	14	880	147	21
Vermont	37	33	1,183	99	32
Massachusetts	156	12	3,106	163	20
Rhode Island	25	12	280	93	11
Connecticut	163	8	2,202	169	14
Middle Atlantic:					
New York	647	12	8,008	107	12
New Jersey	277	6	2,866	159	10
Pennsylvania	486	17	11,805	146	24
Delaware	162	19	5,640	188	35
Maryland	261	26	9,492	138	36
Lake States:					
Michigan	333	18	8,339	139	25
Wisconsin	358	16	9,854	167	28
Minnesota	537	21	15,714	137	29
Corn Belt:					
Ohio	475	15	11,263	154	24
Indiana	458	23	13,451	129	29
Illinois	1,053	17	14,895	81	14
Iowa	1,445	19	28,033	100	19
Missouri	482	23	17,054	156	35
Northern Plains:					
North Dakota	209	19	5,310	136	25
South Dakota	280	17	4,545	97	16
Nebraska	1,034	16	18,187	109	18
Kansas	748	16	15,436	128	21
Appalachian:					
Virginia	321	23	11,509	156	36
West Virginia	63	27	2,987	176	47
North Carolina	447	24	17,497	165	39
Kentucky	164	27	5,793	129	35
Tennessee	188	21	5,912	148	31
Southeast:					
South Carolina	338	20	9,420	143	28
Georgia	725	27	31,836	163	44
Florida	1,611	18	54,951	186	34
Alabama	412	26	19,342	179	47

See footnote at end of table.

Appendix table 16.--Nonfarmwork of farm operators on farms with sales of $100,000 or more, by State, 1964--Continued

Region and State	Operators	Nonfarmwork of farm operator			
		Operators reporting 1/	Days worked on nonfarm jobs	Average days worked by--	
				Operators reporting 1/	All operators
	Number	Percent	Days	Days	Days
Delta States:					
Mississippi	1,213	15	27,629	153	23
Arkansas	1,203	12	22,080	148	18
Louisiana	438	18	12,600	164	29
Southern Plains:					
Oklahoma	276	19	8,440	162	31
Texas	2,499	19	78,646	163	31
Mountain:					
Montana	251	16	6,340	163	25
Idaho	505	17	9,699	113	19
Wyoming	170	15	2,479	95	15
Colorado	675	17	12,386	111	18
New Mexico	318	15	6,314	134	20
Arizona	841	10	13,044	155	16
Utah	143	25	5,789	161	40
Nevada	89	11	1,530	153	17
Pacific:					
Washington	721	13	12,904	139	18
Oregon	512	12	7,761	127	15
California	7,043	11	110,562	141	16
Alaska	NA	NA	NA	NA	NA
Hawaii	127	14	3,766	209	30

1/ Includes some operators who worked on other farms. Less than 4 percent of the days worked off-farm was on other farms.

NA = Not applicable.

Source: 1964 Census of Agriculture, Vol. I, table 23.

Appendix table 17.--Average off-farmwork and off-farm income per farm, by operators and by other persons in operator households, by State, all farms, 1964

Region and State	Average days worked per farm at off-farm jobs by--1/		Average off-farm income per farm from all sources of--2/	
	Operators	Other members of operator households	Operators	Other members of operator households
	Days	Days	Dollars	Dollars
United States	79	46	2,360	824
New England:				
Maine	100	72	2,211	1,147
New Hampshire	112	73	2,864	1,216
Vermont	75	77	1,860	1,172
Massachusetts	84	67	2,684	1,396
Rhode Island	85	39	2,229	1,023
Connecticut	84	68	3,016	1,486
Middle Atlantic:				
New York	81	58	2,269	1,185
New Jersey	64	51	2,508	1,207
Pennsylvania	94	57	2,480	1,026
Delaware	78	46	2,211	835
Maryland	85	62	2,764	1,251
Lake States:				
Michigan	109	55	3,139	1,090
Wisconsin	69	51	1,832	886
Minnesota	48	37	1,680	649
Corn Belt:				
Ohio	100	48	2,870	973
Indiana	99	54	2,933	1,005
Illinois	60	39	2,147	808
Iowa	43	31	2,013	590
Missouri	80	40	2,270	699
Northern Plains:				
North Dakota	30	27	1,573	517
South Dakota	29	26	1,378	496
Nebraska	36	29	2,017	554
Kansas	65	38	2,392	704

See footnotes at end of table.

Appendix table 17.--Average off-farmwork and off-farm income per farm, by operators and by other persons in operator households, by State, all farms, 1964--Continued

Region and State	Average days worked per farm at off-farm jobs by--1/		Average off-farm income per farm from all sources of--2/	
	Operators	Other members of operator households	Operators	Other members of operator households
	Days	Days	Dollars	Dollars
Appalachian:				
Virginia	85	58	2,183	988
West Virginia	109	38	2,679	691
North Carolina	69	61	1,678	855
Kentucky	71	39	1,812	660
Tennessee	85	54	2,030	820
Southeast:				
South Carolina	87	73	1,886	1,007
Georgia	91	64	2,233	972
Florida	105	49	3,239	925
Alabama	93	51	2,135	796
Delta States:				
Mississippi	81	50	1,759	698
Arkansas	86	44	1,832	606
Louisiana	95	35	2,575	669
Southern Plains:				
Oklahoma	102	41	2,827	697
Texas	93	42	3,052	800
Mountain:				
Montana	54	33	2,072	685
Idaho	83	48	2,294	814
Wyoming	58	37	2,203	798
Colorado	69	39	2,715	774
New Mexico	84	34	3,174	690
Arizona	92	41	3,976	909
Utah	118	56	3,392	977
Nevada	79	46	2,764	1,032
Pacific:				
Washington	107	48	3,450	960
Oregon	114	52	3,655	1,011
California	91	46	4,279	1,191
Alaska	107	34	5,319	979
Hawaii	129	97	3,309	1,735

1/ In the United States, nonfarm jobs accounted for 96 percent of all off-farmwork by operators and 92 percent of that done by other household members.

2/ Operators' off-farm income consisted of: 60 percent, wages and salaries; 21 percent, nonfarm businesses or professions and social security and other benefits; 19 percent, Government payments, rent, interest, dividends, and so forth.

Source: 1964 Census of Agriculture, Vol. II, Ch. 5, tables 22 and 23.

Appendix table 18.--Off-farm income of all persons in farm operator households, by size of farm, all farms, 1964

Off-farm income	Size of farm 1/				
	Total 2/	Largest	Large	Medium	Small
	--Dollars--				
Wages and salaries	6,447,322,367	37,876,948	390,249,695	1,371,145,750	4,648,049,974
Nonfarm business or profession	1,154,776,676	19,373,461	132,838,482	284,366,754	718,197,979
Social security, pensions, veteran and welfare payments	841,370,922	3,553,721	39,125,993	147,293,553	651,397,655
Rent from farm and nonfarm property, interest, dividends, Government payments and so forth	1,604,223,997	85,228,547	424,091,365	590,115,999	504,788,086
Total	10,047,693,962	146,032,677	986,305,535	2,392,922,056	6,522,433,694
	--Percentage distribution--				
Wages and salaries	64.1	25.9	39.5	57.3	71.3
Nonfarm business or profession	11.5	13.3	13.5	11.9	11.0
Social security, pensions, veteran and welfare payments	8.4	2.4	4.0	6.1	10.0
Rent from farm and nonfarm property, interest, dividends, Government payments, and so forth	16.0	58.4	43.0	24.7	7.7
Total	100.0	100.0	100.0	100.0	100.0

1/ Farm sizes are measured as follows: The largest--$100,000 or more; large--$20,000 through $99,999; medium--$5,000 through $19,999; and small--less than $5,000.

2/ Indian reservations, institutional farms, and other special farms are not included.

Source: 1964 Census of Agriculture, Vol. 2, Ch. 6, tables 15 and 16.

Appendix table 19.--Off-farm income of all persons in farm operator households on farms with sales of $100,000 or more, by State, 1964

Region and State	Operator households	Off-farm income of operator households			
		Households reported	Total off-farm income	Average per household for--	
				Households reported	All households
	Number	Percent	1,000 dollars	Dollars	Dollars
United States	31,401	57	146,033	8,106	4,651
New England:					
Maine	439	56	787	3,201	1,794
New Hampshire	42	48	111	5,537	2,637
Vermont	37	70	240	9,210	6,472
Massachusetts	156	56	593	6,810	3,798
Rhode Island	25	64	55	3,464	2,217
Connecticut	163	58	477	5,077	2,928
Middle Atlantic:					
New York	647	56	1,549	4,254	2,393
New Jersey	277	53	841	5,758	3,035
Pennsylvania	486	54	1,485	5,626	3,056
Delaware	162	55	491	5,514	3,029
Maryland	261	58	813	5,351	3,116
Lake States:					
Michigan	333	59	1,117	5,726	3,353
Wisconsin	358	59	1,053	5,014	2,941
Minnesota	537	64	1,746	5,121	3,252
Corn Belt:					
Ohio	475	59	1,463	5,261	3,079
Indiana	458	63	1,730	6,028	3,778
Illinois	1,053	55	3,432	5,877	3,259
Iowa	1,445	65	5,425	5,734	3,754
Missouri	482	68	2,956	8,956	6,132
Northern Plains:					
North Dakota	209	74	1,106	7,132	5,289
South Dakota	280	68	1,202	6,360	4,293
Nebraska	1,034	69	5,230	7,335	5,058
Kansas	748	70	4,359	8,351	5,828
Appalachian:					
Virginia	321	64	1,475	7,126	4,595
West Virginia	63	67	203	4,829	3,219
North Carolina	447	68	1,961	6,410	4,388
Kentucky	164	68	1,037	9,256	6,321
Tennessee	188	66	1,066	8,597	5,670
Southeast:					
South Carolina	338	64	1,307	5,995	3,867
Georgia	725	65	2,879	6,138	3,971
Florida	1,611	50	6,941	8,612	4,309
Alabama	412	67	1,854	6,716	4,499
Delta States:					
Mississippi	1,213	58	5,176	7,405	4,267
Arkansas	1,203	47	4,099	7,230	3,408
Louisiana	438	54	2,843	12,046	6,490
Southern Plains:					
Oklahoma	276	70	4,572	23,813	16,566
Texas	2,499	61	21,340	13,930	8,540
Mountain:					
Montana	251	61	1,039	6,837	4,141
Idaho	505	57	1,892	6,569	3,746
Wyoming	170	59	828	8,276	4,868
Colorado	675	58	3,242	8,291	4,803
New Mexico	318	54	1,790	10,346	5,629
Arizona	841	45	4,099	10,788	4,874
Utah	143	62	679	7,630	4,749
Nevada	89	52	259	5,62[illegible]	2,906
Pacific:					
Washington	721	58	3,289	7,926	4,562
Oregon	512	53	1,515	5,611	2,959
California	7,043	51	31,879	8,858	4,526
Alaska 1/	---	---	---	---	---
Hawaii	127	56	508	7,153	3,999

1/ Data for Alaska withheld to avoid disclosure.

Source: 1964 Census of Agriculture, Vol. I, table 23.

Appendix table 20.--Average age and years of schooling of commercial farm operators, by State, 1964

State	Average age of farm operator	Average years of schooling	State	Average age of farm operator	Average years of schooling
	Years	Years		Years	Years
Conterminous U.S.	49.4	9.5			
Alabama	50.3	8.2	Nebraska	47.9	10.2
Arizona	49.4	12.4	Nevada	48.9	11.6
Arkansas	49.7	8.8	New Hampshire	51.3	10.8
California	50.9	10.9	New Jersey	51.2	10.0
Colorado	48.7	10.4	New Mexico	49.8	10.1
Connecticut	51.3	10.4	New York	49.8	10.2
Delaware	50.0	9.4	North Carolina	48.5	7.9
Florida	52.0	10.2	North Dakota	47.4	9.3
Georgia	50.4	8.3	Ohio	49.4	10.4
Idaho	49.0	11.8	Oklahoma	50.7	9.9
Illinois	48.8	10.1	Oregon	50.9	10.8
Indiana	49.3	10.5	Pennsylvania	48.9	9.7
Iowa	47.5	10.2	Rhode Island	51.1	10.2
Kansas	49.7	10.5	South Carolina	49.6	8.0
Kentucky	49.3	8.3	South Dakota	47.5	9.7
Louisiana	49.8	7.9	Tennessee	50.5	8.2
Maine	50.5	10.6	Texas	51.2	9.7
Maryland	50.1	9.1	Utah	50.3	11.3
Massachusetts	51.8	10.9	Vermont	49.5	10.0
Michigan	49.4	9.9	Virginia	51.0	8.2
Minnesota	47.8	9.3	Washington	50.1	10.7
Mississippi	50.3	8.3	West Virginia	52.4	8.8
Missouri	50.5	9.6	Wisconsin	48.4	9.3
Montana	48.7	11.2	Wyoming	49.4	10.6

Source: Data derived from 1964 Census of Agriculture, Vol. I, State table 17.

Appendix table 21.--Sales by family farms as a percentage of all farm sales, by States, 1964 1/

Region and State	Percent	Region and State	Percent
New England:		Southeast:	
Maine	47	South Carolina	47
New Hampshire	62	Georgia	57
Vermont	75	Florida	20
Massachusetts	44	Alabama	64
Rhode Island	50		
Connecticut	41	Delta States:	
		Mississippi	45
Middle Atlantic:		Arkansas	50
New York	63	Louisiana	52
New Jersey	43		
Pennsylvania	72	Southern Plains:	
Delaware	57	Oklahoma	79
Maryland	65	Texas	48
Lake States:		Mountain:	
Michigan	79	Montana	72
Wisconsin	87	Idaho	58
Minnesota	89	Wyoming	57
		Colorado	43
Corn Belt:		New Mexico	38
Ohio	81	Arizona	11
Indiana	85	Utah	63
Illinois	87	Nevada	29
Iowa	91		
Missouri	82	Pacific:	
		Washington	54
Northern Plains:		Oregon	54
North Dakota	87	California	2[illegible]
South Dakota	88		
Nebraska	79	Total (48 States)	64
Kansas	78		
Appalachian:			
Virginia	62		
West Virginia	[illegible]7		
North Carolina	[illegible]2		
Kentucky	80		
Tennessee	75		

1/ Family farms are those with no hired management and with less than 1.5 man-years of hired labor.

Source: Data derived from a special tabulation of the 1964 Census of Agriculture made available by Bur. of Census.

HEARINGS ON

THE ROLE OF GIANT CORPORATIONS IN THE AMERICAN AND WORLD ECONOMIES

PART 3. CORPORATE SECRECY: AGRIBUSINESS

Before the

SUBCOMMITTEE ON MONOPOLY OF THE SELECT COMMITTEE ON SMALL BUSINESS
UNITED STATES SENATE

Washington, D. C., March 1, 1972

OPENING STATEMENT BY SENATOR GAYLORD NELSON

Chairman, Subcommittee on Monopoly

Today and tomorrow the Subcommittee on Monopoly will continue part 3 of its hearings on the role of giant corporations in the American and world economies. Part 3 is concerned with the effects of corporate giantism and corporate secrecy in agriculture.

The three parts of that threefold topic are not only relevant but vitally important to small business, for several reasons.

Agriculture is important, first, because the family farm is itself a small business In its highest form, when nature favors and society permits, it exemplifies the values the Senate Small Business Committee exists to serve and perpetuate. Beyond that, agriculture is important because the condition and survival of many other types of small businesses, and of small towns, hang upon the condition and survival of family farming concerns. On this point, our first witness today is a pioneering expert, and all our witnesses have highest credentials.

Corporate giantism is important, because large corporations are moving into agriculture and affecting the survival prospects of family farms and of the small businesses that serve and are served by the farms.

Corporate secrecy is important, because its practice prevents farmers and the public from knowing all they need to know in order to understand, evaluate and make policy decisions on important cultural, political and economic matters which affect the welfare and future of the country.

The extent to which farmers' lives are being changed is reflected nowhere more vividly than in the agricultural census data. The slightly over 2.9 million farms in this country today are just half the number that existed 25 years ago, when Professor Goldschmidt, our first witness, made his study of Arvin and Dinuba, California.

This morning, Dr. Goldschmidt is going to take us on a guided tour of the making of that famous study--and of a part that wasn't made--and then he and his colleagues will discuss later work in the same field. Even more important, they will discuss the urgent work that is still waiting to be done.

The Subcommittee welcomes as its witnesses today Professor Walter Goldschmidt of the Department of Anthropology, University of California at Los Angeles; Professor Philip M. Raup of the Department of Agricultural and Applied Economics, University of Minnesota; Professor Eugene A. Wilkening of the Department of Rural Sociology, University of Wisconsin; and Professor Richard D. Rodefeld of the Department of Sociology, Michigan State University.

We shall hear them in that order.

For Release Upon Delivery
March 1, 1972

Statement of

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Prepared for

Hearings on

THE ROLE OF GIANT CORPORATIONS IN THE AMERICAN AND WORLD ECONOMIES

PART 3. CORPORATE SECRECY: AGRIBUSINESS

Before the

SUBCOMMITTEE ON MONOPOLY of the SELECT COMMITTEE ON SMALL BUSINESS

UNITED STATES SENATE

Room 318, Old Senate Office Building

Washington, D. C.

THE CURRENT STATUS OF U.S. "CORPORATE" FARM RESEARCH

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THE CURRENT STATUS OF U. S.
"CORPORATE" FARM RESEARCH

I. Introduction

In the last four to five years, a great deal of concern has been expressed by many rural people, farm and nonfarm, about a phenonmenon commonly referred to as "corporate" or "corporation" farming. The fact this hearing is being held today is in itself strong evidence of this concern. Claims have been made that for various reasons the number and importance of such farms have been increasing in recent years. It has been argued a continuation of this trend would have more negative or undesireable effects associated with it than positive effects. This has provided the major justification for attempts to exert control over or influence the trend toward "corporate" farms.

My major objective in this presentation will be to address various issues stemming from and suggested by this situation. Specifically, I would like to review: what some of the major questions in this area are and the types of information needed; the findings and adequacy of a few major research efforts in the area of "corporate" farming; and a proposal for research which would seek to determine what community effects would be associated with a change from "family" to "corporate" farms.

II. Major Questions About "Corporate" Farms

From a research and policy perspective, research should be carried out and answers provided to at least six major questions about "corporate" or "corporation" farms. These questions are:

1. What are they?
2. What are their characteristics?
3. How do they differ from "family" farms?

4. What is their trend in numbers and characteristics?
5. What is causing the trend toward them?
6. What effects will accompany a trend toward them?

A. What is a "corporate" or "corporation" farm?

The first question which must be answered is "what is a 'corporate' or 'corporation' farm"? The centrality and importance of this question is derived, from the fact that the answer provided to it will influence the answers provided for all additional questions asked about "corporate" farms. The answers to the other questions, of course, will determine the extent to which "corporate" farms are viewed as a societal problem, the urgency with which attempts will be made to solve the problem, and the ways in which the problem might be solved. Discussions of "corporate" farms and the provision of answers to questions about "corporate" farms have been hindered considerably and often worked at "cross-purposes" because of differences in how "corporate" farm have been defined.

For instance, some have defined "corporate" farms, generally, as legally incorporated businesses with agricultural production. When this approach is taken, an attempt is usually made to distinguish between incorporated "family" (closely held) and "nonfamily" (nonclosely held) farms. Incorporated "nonfamily" farms most likely would be those thought of by most as "corporate" farms. "Corporate" farms have also been defined, primarily through examples in the mass media as farms owned by nonfarm corporations such as Tenneco, Stokely Van Camp, Purex, Boeing, Ralston Purina, Gates Rubber, etc. Another definition of "corporate" farms is large, absentee owned farms with hired managers and hired workers. This definition is derived from the testimonies of rural farm and nonfarm people before this Subcommittee in Omaha and Eau

Claire in 1968.[1] "Corporate" farms could also be defined as all "nonfamily" farms. Here, of course, a definition of what a "family" farm is becomes necessary. Such a definition will, of course, be necessary if "corporate" and "family" farms are to be compared.

In the past, two types of farms have been equated with "family" farms: those owner-operated and those using less hired labor than that provided by the individual operator and his family. "Nonfamily" farms have been equated with nonowner-operated farms (tenant and hired manager), and those using more hired labor than that provided by the individual operator and his family.[2]

While all of the definitions of "corporate" farms found similar, and to many perhaps appear the same, they are in fact all different. Thus, while all nonfarm corporations are legally incorporated, not all legally incorporated farms are nonfarm corporations. Similarly not all large farms with absentee owners, hired managers and hired workers, or all "nonfamily" farms are legally incorporated. While all nonfarm corporation farms are "nonfamily", not all "nonfamily" farms are owned by nonfarm corporations. Not all large farms with absentee owners, hired managers and hired workers are owned by nonfarm corporations. These may also be owned by an individual, family or small group of unrelated individuals. With the variety of "corporate" farm definitions which have been used, it is not surprising disagreements have occurred over the number, characteristics, trends and significance of "corporate" farms.

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[1] Corporation Farming, Hearings before the Subcommittee on monopoly of the Select committees of Small Business, United States Senate, ninetieth Congress, Second Session on the Effects of Corporation Farming on Small Business, Great Plains and Upper Midwest, U.S. Government Printing Office, Washington, 1968.

[2] Discussions of these farm types and their definitions can be found in: Nikolitch, Radoje, Our 31,000 Largest Farms, USDA ERS, Agr. Econ. Rep. No. 175, March 1970 and Moyer, David O., Marshall Harris and Marie B. Harmon, Land Tenure in the United States: Development and Status, USDA ERS Agr. Inf. Bul. No. 338, June, 1969.

1. Farm Types Defined

Clearly, a classification system of farms is needed which will elicit a high level of unanimity, will be comparable to classifications used in the past and be flexible enough to overcome major differences of opinion as to what constitutes a "family", "nonfamily" or "corporate" farm. I have developed one such scheme which I think satisfies these criteria. Four ideal types of farms are identified. These types are: family (FF), tenant (TF), larger than family (LTFF) and large scale industrial (LSIF). To establish these farm types, all farms are first divided into two groups: those owner-opeated and those nonowner-opeated. Essentially, this is a distinction between absentee and nonabsentee owned farms. Owner-operated farms are then divided into those which have less than half their total work provided by hired workers (FF), and those which have more than half their work provided by hired workers (LTFF). The same distinction is made for nonowner-operated (absentee owned) farms. Those with less than half their total work provided by hired workers are classified as TF's, those with more than half as LSIF's.

2. "Corporate" Farm Defined

Taking this approach, what then is a "corporate" farm? and a "family" farm? Clearly, the LSIF is most directly analogous to what has been referred to as a "corporate" farm by rural people and farm organization leaders. Gilbert Rhode, the President of the Wisconsin Farmers Union who testified before this Subcommittee on December 1, 1971, as a spokesman for the National Farmers Union, has stated that his organization is most concerned with those farms identified by this speaker as being of the large scale industrial type (LSIF)[3].

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[1] Wisconsin Farmers Union News, Vol. 30, No. 7, April 12, 1971, p. 4.

Since these farms have hired managers and workers, they also would be expected to be larger than the average farm.

In adopting this definition, it will probably be useful to distinguish between two major types of LSIF's: those owned by nonfarm corporations and those owned by an individual, family or small group of unrelated individuals. As was pointed out earlier, most of the publicity to date has centered around LSIF's owned by nonfarm corporations.

One unfortunate function of the exclusive publicity given to LSIF's owned by nonfarm corporations has been the resultant impression created that this is all that has been meant by "corporate" farms. This most assuredly is not the case, however. At the local community level, rural people are probably most concerned with LSIF's owned by an individual, family or small group of unrelated individuals, if for no other reason than most LSIF's are of this type. Our research in Wisconsin, for instance, found 76% of all incorporated LSIF's were of this type.[4] Furthermore, when the possible effects of "corporate" farms on local communities have been discussed, distinctions have not been made between the two types of LSIF's. Numerous examples were presented in this Subcommittee's 1968 hearings of specific "corporate" farms which were actually owned by an absentee individual, family or small group of unrelated individuals, not a nonfarm corporation.

It should also be kept in mind that if it is agreed all LSIF's are "corporate" farms, then when "corporate" farms are enumerated for study, all LSIF's should be included in that enumeration. Enumerations of legally incorporated farms will not include all LSIF's. If the research is accurate, all or most nonfarm corporations with farm operations will be included, but not all LSIF's owned by an individual, family or small group of unrelated individuals since this type of LSIF need not be legally incorporated.

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[4] Rodefeld, Richard D., Wisconsin Incorporated Farms I: Types, Characteristics and Trends, Center for Applied Sociology (MI), Department of Rural Sociology, University of Wisconsin, Madison, December, 1971, p. 12.

3. "Family" Farm Defined

I think the family type farm (FF) as defined here most closely approximates the historical meaning of "family" farm and the meaning still attached to this term by most Midwestern farmers, i.e. a farm owned and managed by an individual or a family, who also do all or the majority of the work on the farm. Undoubtedly, everyone would agree that family type farms (FF) are "family" farms even though disagreeing, perhaps, on whether TF's and LTFF's are most appropriately viewed as "family" or "nonfamily" farms. This suggests the desireability of classifying these farm types separately and distinguishing them from either FF's or LSIF's. If farms are classified and described in terms of these four farm types, then regardless of how individual viewers choose to define "family" or "nonfamily" farms, they will be able to aggregate the data in a way consistent with their views. An example of what is meant here will also illustrate this classification procedure is consistent with two other major farm classification systems. You will recall one major classification was based on who operated the farm on a daily basis: the owner (part or full), a hired manager or a tenant. The tendency has been to view owner-opeated farms (FF's and LTFF's) as "family" and nonowner-operated farms (TF's and LSIF's) as "nonfamily". The second major type of classification was based on the amount of hired labor. Farms employing less than 1.5 man years of hired labor per year (TF's and FF's) have been viewed as "family", while those employing more than 1.5 man years (LTFF and LSIF) have been viewed as "nonfamily". Thus, if farms are classified initially as to the four suggested types, they can be combined in various ways to approximate "family" and "nonfamily" farms as specified in previous classifications. This flexibility was not present in either of the previous classifications.

D. How Many "Corporate" (or LSIF) Farms are There and What Are Their Their Characteristics?

Information should be obtained on the number and basic descriptive characteristics of "corporate" (LSIF) farms for the nation as a whole and for individual states. At a minimum, the following types of information should be obtained: acreage characteristics (owned, rented to and from, crop acres and total acres operated), production characteristics (types, quantity, value), numbers and types of managers and hired workers, number and types of owners, nonagricultural business interests of the owners, the value of the farm, and year established. With this and perhaps other information, the present absolute status of LSIF's or "corporate" farms can be assessed for the nation and individual states.

This information will play an important role in determining the extent to which LSIF's or "corporate" farms are viewed as a problem at the present time and might influence the urgency associated with attempts to solve the problem. For instance, if a small number of such farms are found nationally, equally distributed across states and enterprise areas and do not account for high percentages of total farm sales or sales within specific product areas, not much of a problem would seem to exist and concern with these farms on this basis would be low. If on the other hand, these farms are found to be presently playing a significant role either in all states or a large number of states and/or in all or a number of specific product areas, it is much more likely they will be viewed as a problem presently worthy of research and legislative activity. Three research efforts which have sought to provide this type of information will be discussed in this presentation. They are: the 1968 USDA ERS national survey of legally incorporated farms; the 1969 Census of Agriculture and Wisconsin research on legally incorporated farms.

C. How Do "Corporate" (LSIF) Farms Differ From "Family" Farms"

The information sought here is what the magnitude of difference is between "corporate" (LSIF) farms and "family" farms for various farm characteristics. The same information necessary or desireable to describe "corporate" (LSIF) farms can also serve as the basis for comparisons between such farms and "family" farms. Thus, average acreages for the nation and individual states could be compared as could average: income, number of hired workers and production characteristics (number of beef cattle, milk cows, acres of vegetables, etc.). Comparisons should also be made in terms of the national and state totals of various farm characteristics (acreage, production, sales, etc.) accounted for by each type of farm.

These relative types of information will or could have the same effects suggested for the absolute "corporate" (LSIF) farm characteristics. Thus, if the magnitude of difference between "corporate" (LSIF) and "family" farm averages for various farm characteristics is small, and "corporate" (LSIF) farms account for low percentages of all types of agricultural production and sales for the nation and individual states, no problem will be perceived as presently existing with "corporate" (LSIF) farms. If the differences in average characteristics are large and/or "corporate" (LSIF) farms account for high percentages of sales in all or some production areas, the probability is higher these farms will be viewed as a present problem and a threat to "family" farms. One reason for devoting attention to the ways in which "corporate" and "family" farms are defined is that this alone can influence the magnitude of differences observed, just as it will influence the number and absolute characteristics of "corporate" farms.

The USDA, Census for Agriculture and Wisconsin research report information related to this question.

D. What is the Trend in the Number of "Corporate" (LSIF) Farms and Their Characteristics?

This information is important since it will suggest at what point in the future "corporate" (LSIF) farms might comprise a problem even though no problem presently exists. The major concern here would be with the rate at which new "corporate" (LSIF) farms are being established and what the growth rates in terms of acreage, income, production, etc. are for this type of farm. If it is decided no problem presently exists with "corporate" (LSIF) farms and these growth rates are found to be low, then the sense of urgency in solving any problems associated with such farms will be lessened. High or rapid growth rates should or could have the opposite result, especially if found in conjunction with present high absolute numbers and large relative differences when compared to "family" farms. The USDA, Census of Agriculture and Wisconsin research have information relevant to this question.

E. What is Causing The Trend Toward "Corporate" (LSIF) Farms?

Related to the trend information and its assessment is information which would provide an understanding of the forces which might be causing a change from "family" to "corporate" (LSIF) farms. A knowledge of these forces is necessary not only to understand the present status of "corporate" (LSIF) farms, but also for an accurate assessment of what the future trend might be. The present absolute and relative status of such farms might be a short range abberation. On the other hand, the forces which have brought about the present level of "corporate" (LSIF) farms might continue indefinitely into the future, and perhaps be strengthened with a resultant increase in the level of such farms over time. A second reason for the importance of this information is, if it is decided to be in society's best interest to control, regulate or restrict "corporate" (LSIF) farms, such a goal might be achieved by removing those forces responsible for the increased number and/or status of such farms.

The general question which might be asked here is "What conditions, factors and forces are allowing for and causing 'family' farms to be replaced by 'corporate' (LSIF) farms?" Implicit in this question are two more specific questions. These are:

a) What conditions, factors and forces are causing "family" farms to cease operation? and,

b) What conditions, factors and forces are causing "corporate" (LSIF) farms to be established?

Certainly these two phenomena are interrelated. Thus, one of the major explanations for a decrease in "family" farms might be an increase in "corporate" (LSIF) farms, and conversely, "corporate" (LSIF) farms might be increasing because of land made available through the discontinuation of "family" farms. Relatively different causal processes might be involved beyond this basic interrelationship, however.

1. Possible Causes of a Decline in "Family" Farms

"Family" farms could be ceasing operations for a variety of reasons quite independent of the status of "corporate" (LSIF) farms. One of these factors or conditions might be: the inability of the operator to secure an adequate income, which in turn might be explained by a variety of factors, such as the inability of farmers to organize and bargain collectively with processors for the price of their products, the inability to secure capital for farm expansion and technological improvements, high property taxes, inefficient management, or the inability to obtain land for expansion.

With the retirement or death of the farm operator, there may be no other family members available , willing or able to take the operation over. Even if there was a son willing to take over the operation, a number of factors either singly or in various combinations might result in the farm's sale to nonrelatives. Some of these factors are: a large number of brothers and sisters, inheritance laws, a high farm value, anticipated low future earnings and low accessibility to large amounts of capital. The farm operator may have had off-spring who no longer were available to assume the operation of the farm since they had acquired nonfarm occupations. If this was the case, then the question might be raised as to why they left the farm and farming in the first place. This would be especially true if an opportunity had existed for them at the completion of their schooling to assume the operation of the family farm. Certainly factors like low anticipated future earnings and the low prestige which society has accorded to its farmers might be relevant here.

2. Possible Causes of an Increase in "Corporate" (LSIF) Farms

On the other hand, the major conditions, factors and forces leading to or causing "corporate" (LSIF) farms to be established might be quite different from those affecting the continuance or discontinuance of "family" farms. Furthermore, these causes might be found in a number of institutional areas. For instance numerous economic factors might be influencing such a trend or change, such as: speculation in land and anticipated future demands for food; the low wages paid to hired labor made possible in part by the legal difficulties encountered by hired workers in unionizing; the availability of relatively large sums of nonfarm capital for investment; and high, assumed or real profits as a function of differential productivity and efficiency, economies of scale and vertical integration. Characteristics of the legal structure such as differential advantages gained from various income tax procedures, such as those relating to the "writing-off" of farm losses and capital gains, would be relevant here. Governmental programs, for instance, subsidy programs and those relating to import quotas might serve as inducements for the establishment and expansion of "corporate" (LSIF) farms. Certain societal values might also be relevant here, especially to the extent they are supportive of or detrimental to restrictions which might be placed on "corporate" (LSIF) farms. Three such values might be: those concerned with the universal freedom of property ownership expressed perhaps in an unwillingness to place any restrictions on the ownership of private property including farms; the assumed links between bigness, corporations and progress and the assumed inevitability and desireability of functional differentiation and division of labor in the economic sphere, including farms.

LSIF's might also be evolving from former FF's and LTFF's. If with the retirement or death of the owner-operator, a desire still exists to keep the farm in the family, though not operated by the family, the retired owner-operator or heirs might hire a manager (former LTFF) or manager and workers (former FF) to operate the farm. In either case, a LSIF would be established.

Four additional distinctions might be useful in attempting to specify the causal processes leading to "corporate" (LSIF) farms. An attempt might be made, for instance, to specify what factors cause or lead to: the absentee ownership of land; the absentee ownership of large tracts of land with hired managers and hired workers; the establishment of "corporate" (LSIF) farms by nonfarm corporations; and their establishment by an individual, family or small group of unrelated individuals. Nonfarm corporations may be establishing "corporate" (LSIF) farms for major reasons quite different from those of individuals or families.

While numerous suggestions have been made by various authors as to the conditions, factors and forces affecting the trend from "family" to "corporate" (LSIF) farms, little or no research has been carried out on what these conditions, etc. might be, and what kind of relative weights the various factors might have.

This should definitely be an area of high research priority.

F. What Effects Will Accompany A Trend Toward "Corporate" (LSIF) Farms?

Perhaps the most important empirical information needed is what effects will accompany a change from "family" to "corporate" (LSIF) farms. As Professor Wilkening has pointed out, ideally the effects of such a change should be determined for all levels of society: national, regional, state, community, farm, family and individual.

Regardless of the present or future status of "corporate" farms in the U.S., a comparison of the social and economic costs and benefits associated with a change from "family" to "corporate" farms should determine what the society's policy toward "corporate" farms will be. If the social and economic costs to society exceed the benefits of such a change, then any additional changes in this direction should be prevented. The reaching of such a conclusion might also suggest such farms presently existing should be discontinued. In other words, major land reforms might be suggested. The reverse situation should also hold. If the social and economic benefits to society of "corporate" farms exceed their costs, then they not only should be allowed to exist, but they should be encouraged with just and humanitarian programs developed for those farmers displaced by this change.

For this question to be adequately addressed, research wise, a variety of methodological approaches will be necessary not only between levels, but also within specific levels. An example of different methods used at the same level is Professor Goldschmidt's intensive, comparative community study of Arvin and Dinuba where information was obtained from a variety of sources and the Wisconsin research commented on earlier by Professor Wilkening, which obtained information on the community role characteristics of incorporated farm resident owners, hired managers and hired workers. Findings from this research will be reviewed later.

1. The Status of Research on the Effects of a Change from "Family" to "Corporate" Farms

Given the great importance of information about what effects would accompany a change from "family" to "corporate" (LSIF) farms at the various levels of society, precious little research has been carried out addressed specifically to this question. At the national, regional and state levels, there are theories as to what the effects of such a change would be, and some information exists which has implications for these levels. For instance, questions have been raised about a continued trend toward this type of farm in terms of the implications and possible effects on central markets, food prices, amount of vertical integration, concentration of production, political democracy and preservation of natural resources among others. There are no studies I know of which have actually been carried out at these levels addressed to such questions, however.

At the community level, Professor Goldschmidt's study is still the only study which has been addressed to this change which has used the community as the unit of analysis. Other research such as that carried out at Wisconsin, has addressed the question of effects at this level, but the unit of analysis has been the individual not the community.

Some research, but not a great deal, has been carried out at the level of the farm or firm. Research dealing with the questions of changes in productivity and efficiency are examples of such research.

As pointed out earlier by Professor Wilkening, the Wisconsin research tried to obtain some information on the effects of farm change at the levels of the family and individual. Little other research has been carried ~~on~~ out, however, addressed to the question of effects at these levels.

Generally, it might be said very little research has been conducted at any level of society on what the effects of a change from "family" to "corporate" (LSIF) farms would be. This should not be taken to imply there are no ideas or suspicions as to what effects might accompany such a change. It states, rather, that these ideas and suspicions have not yet been proven or demonstrated in a rigorous and scientific way. One ~~The~~ reason such demonstrations have not been made is simply because so little scientifically rigorous research has attempted to test out their validity.

2. Farm Changes With Possible Community Effects

While the effects associated with a change from "family" to "corporate" (LSIF) farms at the community level should be determined, in an ideal sense, it would also be desireable to determine what the specific causes of those effects were. In other words, if certain effects are brought about by a change to "corporate" (LSIF) farms, what is it specifically about such farms that caused the effects? The definitions of FF's and LSIF's are suggestive of two possible sources of these effects. First, LSIF's are absentee owned, while FF's are not. A change from nonabsentee to absentee farm ownership might in itself have independent community effects. For instance, profits earned from the farm operation which formerly remained in the community will leave the community with absentee ownership.

Second, a change from FF's to LSIF's will involve a major change in the composition of the rural farm work-force. Namely, a change from resident farm owners and their families to nonowning hired managers, workers and their families. Relatively independent community effects might be associated with such a change, if those comprising the two different work forces are found to differ in their relationships to community institutions and in the nature of their community roles. A third possibility not suggested directly by the definitions of FF's and LSIF's is that a change from FF's to LSIF's might result in a reduced man:land ratio of community hinterlands. If this decrease is not off-set by other forces, depopulation will occur. This depopulation could also have independent effects on the community.

3. Other Research Relevant to the Effects of a Change From "Family" to "Corporate" (LSIF) Farms

As pointed out previously, while only a few research studies have been carried out specifically on the question of what effects would be associated with a change from "family" to "nonfamily" or "corporate" (LSIF) farms, some research has been carried out relevant to this question. For instance, a large number of studies were carried out in the 1930's and 1940's on the effects of tenancy. One of the major characteristics of tenant farms is that they are absentee owned. The effects which were found to be related specifically to absentee ownership might also be relevant to the effects of LSIF's which also are absentee owned. Second, some research has been carried out on the effects of absentee owned corporations on communities. One such study was that carried out by Mills and Ulmer for this Subcommittee. The effects of absentee owned corporations located in the population centers of communities may be similar to or be relevant to the effects of their location in the community's hinterland. Some research has also been carried out on the effects of large corporations at the national level, especially in terms of market effects, which might be suggestive of the effects in this area and at this level for "corporate" (LSIF) farms. A good deal of research has also been carried out on the effects of rural depopulation. If depopulation is found to be one major outcome of a change from "family" to "corporate" (LSIF) farms, then this research will be useful in specifying what the effects of such a change will be.

III. A Review of Four Major Studies on "Corporate" (LSIF) Farms

I would now like to review the findings and adequacy of four major research efforts which have sought to provide answers to some of the previous six questions. This research is: the 1968 USDA ERS national survey of legally incorporated farms; the 1969 Census of Agriculture; 1969-1970 Wisconsin research and Professor Walter Goldschmidt's studies of Arvin and Dinuba. The first two research efforts and parts of the Wisconsin research are most relevant to questions about the absolute characteristics of "corporate" (LSIF) farms, their characteristics relative to "family" farms, and trends in their number and characteristics ~~of "corporate" (LSIF) farms~~. The Wisconsin interview survey and Professor Goldschmidt's research are most relevant to the question of community effects associated with a change from "family" to "corporate" (LSIF) farms. Comments will also be made on certain aspects of corporate secrecy hindering effective research.

A. The 1968 USDA ERS Survey of Incorporated Farms

In 1968, the Economic Research Service division of the USDA conducted a nationwide enumeration of all incorporated businesses directly engaged in agricultural production.[5] This research was initiated by Secretary of Agriculture Freeman due to concern expressed over an apparent increase in nonfarm corporations entering farming and a lack of empirical data on what the magnitude of this trend was. The major objectives of the research were to determine the number, kinds and general characteristics of corporations involved in the production of farm products. Specific information obtained was: year of incorporation, type of owner (Individual, family, other), types of business interests, number and types of managers and workers, acreage and production characteristics and value of agricultural production.

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[5] The results of this research have been reported in USDA ERS Agr. Econ. Rep. Nos. 209, 156 and 142.

1. The Importance of the USDA ERS Survey and Its Findings

This research and its findings is of great importance for a number of reasons. First, similar data exist for only a few states and no comparable data exists for the nation as a whole at this time the (1969 Census of Agriculture will have similar data when published). As a result, this particular research and its findings has acquired an extremely high level of importance and usage. Its importance is also heightened by the fact it has the legitimacy and prestige of the federal government behind it. Up to this point in time, this research has been the primary, if not exclusive source of descriptive information available to state and national policy makers, policy influencers and parties generally interested in the subject of "corporate" farming.

Given the importance of this research and its findings, I think it is important to recognize what some of ~~the~~ its limitations ~~of this research and its findings~~ are. The following comments are summarized from a paper which has recently been completed, based in part on a replication of the USDA research in Wisconsin.[6]

2. The Proper Universe of "Corporate" Farms May Not Have Been Studied

The universe of "corporate" farms studied by the USDA were all legally incorporated farm businesses involved in agricultural production. As pointed out previously, this type of enumeration also includes incorporated FF's, TF's and LTFF's which to date little concern has been expressed about. This is not necessarily a problem, however, as long as these farms are kept separate from "corporate" or LSIF's. More importantly, in terms of the universe studied, large absentee owned farms with hired managers and hired workers (LSIF's) which were not incorporated were not included. Because of this, there is no way of knowing from this research what the total number of LSIF's is or what their charactertics as a group are.

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[6] Rodefeld, Richard D., "The 1968 USDA ERS Survey of U.S. Incorporated Farm Operations: A Critique of Its Accuracy, Conceptualization and Procedures," submitted for publication to the American Journal of Agricultural Economics, January, 1972.

An estimate of what the upper limits for LSIF's were in 1964 can be obtained from the characteristics of those farms operated by a hired manager. Although the exact percentage is not known, most of these farms undoubtedly had absentee owners. Approximately 70 per cent of these farms reported hired workers in 1964, suggesting 30 per cent were either tenant or owner operated.[7] In 1964, there were 15,088 commercial farms operated by hired managers. These managers operated 62.5 million acres of land, averaging 4,146 acres per farm and had an average value of land and buildings of $564,998 and an average value of products sold of $163,117.[8] This author has estimated that approximately 10,300 of these farms were LSIF's in 1964, averaging $233,859 sales per farm and accounting for 7.0 per cent of all commercial farm sales.[9] It is not known, of course, how many or which of these farms were incorporated and enumerated by the USDA or were unincorporated and left out. Furthermore, the characteristics of those LSIF's left out are not known. Assuredly, if all the LSIF's had been enumerated, their number would have been greater than those enumerated by the USDA.

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[7] Land Tenure in the United States, ---, op. cit., p. 19.

[8] Ibid, p. 15.

[9] Rodefeld, Richard D., "American Agriculture: Farm Types of the Future: Processes Affecting and Differential Effects",an unpublished (MI) paper, p. 7.

3. The Accuracy with Which Legally Incorporated Farms Were Enumerated Appears Quite Low

In Wisconsin, it was found 37 per cent (N=195) of the corporations enumerated by the USDA (N=532) were not qualified for inclusion. A large number of these farms were not incorporated (N=99), had no agricultural production or business (N=40), were inactive or dissolved, tree farms, forestry operations, hunting and fishing clubs, recreational farms or were excess multi-county units (N=35). Furthermore, 43 per cent (N=252) of all the farm corporations actually found in Wisconsin (N=589) were not enumerated by the USDA. These determinations were based on a comparison of the actual corporations enumerated by the USDA and by Wisconsin researchers. The latter research would appear to be most accurate, since it was based on an initial enumeration derived from a review of all Wisconsin corporate tax returns for 1966-67 followed up by questionnaires sent to each corporation with agricultural production and/or income. The USDA enumeration, on the other hand, was provided by county ASCS managers on the basis of office records, and personal knowledge and other information. Since exactly the same enumeration procedures were followed in 46 other states, similar levels of accuracy or inaccuracy might be expected for these other states.

4. The Accuracy of the Information Collected for Each Farm Corporation Appears Quite Low

Most of the specific information obtained by the USDA for each Wisconsin farm corporation was also replicated in the Wisconsin research. It was possible to assess the accuracy of the USDA information by comparing the characteristics of those farm corporations enumerated in both surveys. There were 337 such corporations. Comparing the totals of various characteristics in the two samples, it was found the USDA underestimated the total number of acres actually owned by 37%, acres rented by 269%, number of cattle fed by 80%, number of milk cows by 54%, number of sows by 216% and acres of vegetables by 37%. Smaller differences were found for seven other characteristics. Other statistical procedures also showed the accuracy of information obtained for the same farm corporation in the two studies to be quite low. Since the USDA obtained its information about farm corporations from ASCS offices, while the Wisconsin research obtained its information from persons directly connected with the corporation, it does not seem unreasonable to assume the Wisconsin information was more accurate than the USDA's. Again, since the USDA used exactly the same procedures in 46 other states, similar levels of accuracy would be expected for these other states.

5. The Accuracy of Specifying Average Incorporated Farm Characteristics and Their State Totals Appear Quite Low

The USDA found 532 incorporated farms in Wisconsin while the Wisconsin research found 589, a 10% difference. A large amount of difference was observed between the averages for various farm characteristics and state totals. Thus the average number of acres operated found by the USDA was 222 acres less than that found by Wisconsin, acres rented was 245 acres less, number of cattle fed 94 less, milk cows 35 less, acres of potatoes 82 more and acres of vegetables 186 less. The USDA underestimated total acres operated by 46% (169,781), acres rented by 298% (149,906), number of cattle fed 46% (9,464), number of milk cows 35% (3,269), number of sows 86% (826) and acres of vegetables 65% (35,595). It would thus appear the USDA incorporated farm averages and totals for Wisconsin vary a good deal from those found in the Wisconsin research. Since the same proceudres were followed in 46 other states, similar differences might be expected in these states. Two major explanations are apparent for these differences. First, undoubtedly the information provided by ASCS offices was innacurate in many instances. Second, it was found those farms incorrectly included (not qualified) by the USDA were generally smaller than those incorrectly excluded.

6. It is Not Possible to Distinguish Between "Family" Farms Which Have Incorporated and Incorporated "NonFamily" or "Corporate" (LSIF) Farms

As pointed out earlier, little or no concern exists with "family" farms which have incorporated. If the entire universe of incorporated farms is studied, as was done by the USDA, it is necessary, in fact imperative, to clearly distinguish between incorporated "family" and "nonfamily" or "corporate" farms. "Family" farms could be defined as owner-operated farms, farms employing little or no hired labor, or farms owned and operated by an individual or family who also did the majority of the work (FF).

Initially, it would appear "family" and "nonfamily" farms were distinguished between by the USDA. Incorporated farm operations were classified as to type of owner: an individual, family or other. The tendency has been to equate individual and family owned farm corporations with "family" farm corporations and other owned with "nonfamily" or "corporate" farms. In terms of past definitions of "family" farms or that suggested by this speaker, these equations would be quite incorrect. There are at least three reasons why it is incorrect to equate individual and family owned farm corporations with owner-operated farms. First, family owned farm corporations were not necessarily owned by a family. Family ownership was defined by the USDA as farm corporations with fewer than 10 stockholders, hence was based on number of owners not whether the owners were related by blood or marriage, as is the usual procedure. In this case, incorporated farms with 9 or fewer unrelated owners, none of which owned a majority and all of which were absentee were classified as family owned farms. This type of farm, however, clearly would not qualify as an owner-operated farm. A second reason why individual and family owned farm corporations cannot be viewed as owner-operated farms, is that it appears a high percentage of these farms had individual or family owners who were absentee, hence were not operating the farms they owned. In Wisconsin, 18% of the individual and family owned farm corporations were found to have absentee owners. Certainly it would be inappropriate to equate such farms with owner-operated farms. A third problem is that some farm corporations with 10 or more owners are actually owned and operated by an individual or family. Large families, extended families and the selling of some stock to nonrelatives might result in such a situation. There were 13 such corporations found in Wisconsin (13 per cent of the number of all LSIF's).

Since the USDA classifications were based solely on the type of owner, it was not possible to distinguish between these types on the basis of amount of hired labor (family size versus larger than family size). From other information provided by the USDA, however, it appears more than half of all the U.S. farm corporations would be classified as larger-than-family sized even though approximately 75% were owned by an individual or family. The Wisconsin research found 56% of all individual and family owned farm corporations had 50% or more of their total labor provided by hired workers. It appears if this definition of "family" farm is used, then less than half of all USDA farm corporations would be classified as such.

The USDA farm types have no necessary relationship whatsoever to the four farm types suggested by this speaker. Within each of the three USDA farm types, FF's, TF's, LTFF's or LSIF's could be found. The conclusion reached is that the USDA classification procedures do not distinguish between "family" and "nonfamily" or "corporate" (LSIF) farms. This fact raises questions about the number of "nonfarm", "corporate" or LSIF's found by the USDA, the number of "family" farm corporations found and what the differences are between these two groups of farms.

7. The Classification of Farm Corporations by Types of Business Interests is Uninterpretable

Certainly the occupational and business characteristics of nonfarm corporations and their owners is desireable information to have in assessing a possible increase in nonfarm interests moving into agricultural production. The USDA addressed this question by obtaining information and classifying farm corporations in terms of their business interests. These classifications were: farming only; farming plus agribusiness interests; farming plus non-agribusiness interests, or a combination of all three interests. These classifications, the farms in them and their characteristics are difficult, if not impossible, to interpret, however, since the USDA mixed the business interests of individual corporate owners with the business interests of the corporation. The specific screening questions asked to elicit this information was "Does this person or firm have any other business interests in this country, or elsewhere, in addition to agricultural operations?" If so, the type was determined. An apparent effect of asking this particular question was that other business interests for both the individual owners and the corporation were provided, when available, for those corporations owned by an individual or family; but in the case of other owned corporations, only the other business interests of the corporation were provided. Both types of business interest information would be desireable but they clearly should be kept separate and consistently elicited.

8. The Percentage of All Incorporated Farm Operations Interpreted as Incorporated "Family" Farms Has Been Grossly Overestimated

The common procedure in interpreting the USDA research findings has been to view individual and family owned farm corporations as incorporated "family" farms. Taking this approach, 80% of the farm corporations enumerated by the USDA have been viewed as incorporated "family" farms.[10] It was apparently on this basis Secretary of Agriculture Butz recently stated, "Less than one per cent of our total farms are corporate farms and about six out of seven [86%] of those are family corporation farms. They are really family farms."[11] The implication of statements such as this is essentially to deny the existence of any possible problem by pointing out almost all legally incorporated farms are in actuality "family" farms which have incorporated.

As pointed out previously, however, it clearly is not appropriate to equate individual and family owned farm corporations with "family" farm corporations. An indication of the amount of error involved in making such an equation can be gained from our research in Wisconsin. First, 293 corporations found in both the USDA enumeration and Wisconsin research were cross-classified according to the two methods of classification used. Only one-quarter of the farm corporations owned by an individual were classified as FF's, while an equal percentage ~~Was~~ were classified as LSIF's. About 40% were found to be LTFF's. Of the farm corporations owned by a family (9 or fewer owners) 42% were found to be FF's, 3% TF's, 49% LTFF's and 5% LSIF's. Forty-two per cent of the farm corporations owned by others (10 or more owners) were found to be FF's, TF's or LTFF's. Using slightly different criteria for qualified corporations, Table 1 compares the percentage of Wisconsin incorporated farms classified by type for both the USDA and Wisconsin research.

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[10] Agr. Econ. Rep. No. 209, p. 6.

[11] *Wisconsin Agriculturalist*, Jan. 8, 1972, p. 12.

TABLE 1

THE NUMBERS AND PERCENTAGE DISTRIBUTIONS OF WISCONSIN AND USDA FARM TYPES FOR THE STATE OF WISCONSIN IN 1968[12]

	Wisc. Enumeration		USDA Enumeration		
Farm Type	N	%	Farm Type	N	%
Tenant	34	6.4	Individual	53	10
Family	182	34.4	Family	336	66
Larger-than-family	211	39.9	Other	123	24
Large Scale Industrial	102	19.3	Unclassified	20	
Total	529	100.0		532	100.0

In interpreting the USDA percentages the normal procedure to date would be to conclude 76% of all Wisconsin farm corporations were incorporated "family" farms. However, if a "family" farm is defined as one owned and managed by an individual or family who also do the majority of the work, then only 34%, not 76% of Wisconsin farm corporations were "family" farm corporations. Only 41% of the Wisconsin farm corporations (TF's plus FF's) use little or no hired labor, another way of defining "family" farms. It is true 74% of Wisconsin farm corporations were owner-operated, but if a "family" farm is defined in this way, then the question has to be addressed of whether owner-operated farms with substantial amounts of hired labor appropriately belong in the "family" farm category. The distinction which has been made between family sized and larger-than-family sized would imply it is not.

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[12] Rodefeld, R.D., Wisconsin Incorporated Farms I, ----, op.cit., p. 10 and USDA ERS Agr. Econ. Rep. No. 142, p. 11.

Obviously, whether 34 to 41% of all farm corporations are found to be "family" farms or 80 to 86% will effect the extent to which "nonfamily" incorporated farms are viewed as a possible problem. No problem exists in this regard if almost all farm corporations are found to be "family" farms. If on the other hand, a high percentage of all farm corporations are found to be "nonfamily", then at least the possibility exists that this situation will be viewed as a problem or the likelihood is greater it will be viewed as a problem. A high percentage of incorporated farms were reported by the USDA as "family" because LSIF's, LTFF's and TF's were also included in this category in addition to FF's.

9. The USDA Classification Procedures Reduced the Apparent Amount of Difference Between "Family" and "Nonfamily" Farm Corporations

TABLE 2

AVERAGE ACRES OPERATED BY TYPE OF FARM CORPORATION FOR THE WISCONSIN (N=529) and USDA (N=532) SURVEYS FOR 1968 and 1967, RESPECTIVELY

Wisconsin Enumeration		USDA Enumeration	
Farm Type	Average Acres	Farm Type	Average Acres
Tenant	296	Individual	604
Family	549	Family	622
Larger Than Family	918	Other	924
Large Scale Industrial	2,049		
Total Average	969		691

While a 302 acre difference existed between family and other owned corporations in terms of average acres operated, there were 1,500 and 1,131 acre differences betwwen FF's, LTFF's and LSIF's, respectively. While family owned corporations operated an average of 48% fewer acres on the average than other owned corporations, FF's and LTFF's operated 273% and 122% fewer acres than LSIF's, respectively. Other owned farm corporations comprised 24% of all USDA Wisconsin corporations and operated 32% of all land operated by farm corporations. On the other hand, LSIF's comprised 19% of all Wisconsin farm corporations and opeated 41% all land operated by farm corporations. While acres operated was used as an example, undoubtedly similar findings would be found for other incorporated farm characteristics.

The USDA classification procedures not only resulted in an inflated percentage of "family" farm corporations, they also resulted in the observation of small differences between farms interpreted as "family" and "nonfamily" farms. At the national level, for instance, one group of 22 states had 81% of all farm corporations classified as "family" farm corporations. These "family" farm corporations controlled 80% of the land operated by farm corporations in these states. The same percentages for another group of 25 states were 79% of the corporations and 75% of the land operated. While other owned farm corporations were always larger on the average than individual or family owned farm corporations, on a proportionate basis, the differences were not great. In Wisconsin, for instance, other owned farm corporations operated only 33% more acres on the average than those family owned. The major conclusions following the USDA procedures are most incorporated farms are "family" farms and little difference exists between these farms and "nonfamily" farm corporations. With this approach, not much of a problem appears to exist, nor are there many reasons for being concerned with "corporate" farms.

On the other hand, this situation can be compared to Wisconsin where only 34% of the farm corporations, controlling only 20% of all land operated by farm corporations, were classified as family type farms (FF). Furthermore, these farms operated 273% fewer average acres than farm corporations classified as LSIF's. With this approach, "family" farm corporations are a distinct minority of all corporations with agricultural production and are a great deal smaller than those farms classified as "nonfamily" or "corporate".

The major explanation for these differences, of course, is the fact LSIF's and LTFF's were classified by the USDA in the family owned category. Since these farms were larger on the average than FF's and TF's, the average characteristics for family owned corporations were increased reducing the amount of difference between family and other owned corporations. Furthermore, TF's and some FF's and LTFF's were included by the USDA in their other owned category. Since these farms were smaller than LSIF's, the overall averages for other owned farm corporations were reduced, again reducing the amount of difference between family and other owned farm corporations.

10. The Enumeration of Farm Corporation on a County, State and Corporation Basis Inflated the Number of "Nonfamily" Farm Corporations and Reduced the Amount of Apparent Difference Between "Family" and "Nonfamily" Farms

The procedure followed by the USDA was to enumerate and group all of a corporation's operating units on a county basis for each state. What this means, of course, is that if a corporation had agricultural operations in five counties within a state, five corporations were enumerated, not one. Furthermore, if the same corporation had operations in other states, these also would be enumerated on an individual county basis. The USDA maintained only a few such operations were found. In Wisconsin, however, 39% of the incorporated LSIF's were found to have agricultural production in more than one county and 22% had agricultural operations in more than one state. While this point will not affect the totals (acreage, etc.) observed for the different types of farm corporations, this phenomenon if very widespread and associated with one particular type of farm, will affect the number of such corporations found and the magnitude of differences observed between the different types for average per farm characteristics. Undoubtedly, most of the Wisconsin incorporated LSIF's with operations in more than one county or state had 10 or more stockholders, thus, would have been classified as "other" owned corporations. Most incorporated family type farms on the other hand, were classified as being owned by a family. Only 10% of the incorporated Wisconsin FF's, however, had agricultural operations in more than one county and only 3% had agricultural operations outside the state (versus 39 and 22%, respectively, for LSIF's).

If this type of difference is also found for other states, then the number of other owned corporation farms has been overestimated, and the average differences between these farms and those family owned will be greater, perhaps by a great deal for the other states and for the nation as a whole. Furthermore, this type of phenomenon, if widespread, would also have implications for the concentration of production observed within product areas.

As an example of what might be involved here, assume there are 100 family owned corporations operating 50,000 acres or 500 acres per farm, and there are 100 other owned corporations operating 100,000 acres or 1,000 acres per farm. Next assume that instead of 100 separate other owned corporations, there were only 50 in reality. The acreage operated would remain the same, but the acres operated per farm would increase to 2,000 acres. This is exactly the same type of mechanism operating vis-a-vis multi-county and state operations.

Another procedure followed by the USDA would have similar effects to that of enumerating farm corporations by counties and states. This is the fact that the same individual, family, unrelated individuals or other corporations may own multiple farm corporations. Each such corporation was, of course, counted and described separately. While it is clear this type of pehnomenon exists, little or no data exist on how widespread this pattern might be. If it is found to be disproportionately associated with other owned corporations, it will reduce the amount of average per farm difference between these corporations and family owned farm corporations, and the number of corporations enumerated will be greater than the number of corporate farm owners.

11. While Some Trend Data Was Presented, It Was Uninterpretable

Problems of enumeration and information accuracy and the inability to distinguish between "family" and "nonfamily" corporations suggest this conclusion. For a group of 22 states, about 50% of all corporations had incorporated in the period from 1960-68. What were the percentages, however, for incorporated FT's, TF's, LTFF's and LSIF's? This is not known. Another shortcoming of this approach in assessing trends is even if accurate information was available, it is not known how many farm corporations are being discontinued. All that is known is the gross growth rate, not the net.

12. Conclusions

On the basis of the preceding comments, I do not think the USDA survey should be used as a source of descriptive data about either "corporate" farms, "nonfamily" farm corporations or legally incorporated farms generally. Major questions exist not only about the accuracy of this research, but also the procedures followed in enumerating and classifying farm corporations.

The major effect of a number of the procedures followed has been to reduce the absolute characteristics of "corporate" or "nonfamily" corporation farms and reduce the apparent amount of difference between "family" and "nonfamily" farm corporations. Both of these outcomes, it would seem, would work in the direction of reducing the extent to which "corporate" or "nonfamily" farm corporations might be viewed as a possible problem and/or threat to "family" farms and society as a whole.

B. The 1969 Census of Agriculture and the USDA ERS Survey Compared

In 1969, corporations with agricultural production were identified by the Census of agriculture. Undoubtedly, in the future, the Census of Agriculture will become the basic reference source for descriptive information about legally incorporated farm operations for the nation, individual states and counties. As such, it is important to understand what types of information will be available from this source, and what problems might be associated with the interpretation of this information. The 1969 Census of Agriculture will be compared to the USDA survey of incorporated farms since these are the only two sources of nation-wide data on legally incorporated farm operations.

1. The Problems of Enumeration and Information Accuracy Should be Greatly Reduced

The Census of Agriculture used a mail-out procedure in 1969 where the forms were sent to the farm owners (absentee and nonabsentee and tenant operators). Their mailing lists were compiled from a variety of sources such as the IRS, ASCS, Social Security and past Census'. The major goal of the census, of course, is to enumerate all farms. The extent to which this was accomplished was also, probably, the degree to which all farm corporations were identified. Assuredly, the enumeration accuracy was much higher than that observed for the USDA survey. The information obtained about farm operations should also be much higher in accuracy, since the owners (or tenants-share-croppers) provided the information, instead of someone not connected with the operation as was the case with the USDA survey.

2. A Greater Quantity of Information Was Obtained With Greater Detail

Examples of information obtained by the census, but not the USDA were: conservation practices followed, production and marketing contract information, machinery characteristics, production expenses and farm owner (or tenant-sharecropper) characteristics such as age, race, off-farm work and place of residence. More detailed information was obtained on acreage, types and quantities of production, and market values of production.

3. Some of the Same Problems of Interpretation Are Found

The Census of Agriculture has divided farm corporations into two groups: those with 10 or fewer shareholders and those with more than 10 shareholders. For all practical purposes, these classifications are exactly the same as those used by the USDA; hence, 10 or fewer shareholders will equal corporations owned by an individual or family (9 or fewer shareholders), and those with more than 10 shareholders will equal those USDA farm corporations with other (10 or more shareholders) owners. If no further distinctions are made between these two categories of farm corporations (through special tabulations), exactly the same problems of interpretation and effects will be found for the Census of Agriculture information as was found for the USDA ERS survey. These problems will be briefly summarized.

a. Legally incorporated farms are not analagous to "corporate" farms

If "corporate" farms are defined as LSIF's, then not all such farms have been included by the census in their categories of legally incorporated farms. The number of LSIF's will be greater than that found and inferred from the category of more than 10 shareholders. This problem could be overcome, somewhat, through special tabulations.

b. It is not possible to distinguish between "family" farms which have incorporated and incorporated "nonfamily" or "corporate" (LSIF) farms

As with the USDA survey, it will not be possible to distinguish between incorporated "family" and "nonfamily" farms. The tendency undoubtedly will be to equate those corporations having 10 or fewer shareholders with "family" farms, and those with more than 10 shareholders with "nonfamily". This will be incorrect, however, for the same reasons pointed out for the USDA survey. Thus, farm corporations with 10 or fewer shareholders will include: owner and nonowner operated farms, farms with little and a great deal of hired labor, and generally FF's, TF's, LTFF's and LSIF's. Many of these specific types of farms have not been viewed as "family" farms in the past. Hence, this census category should not be equated with "family" farm corporations. All of the same specific types of farms will also be included in the census category of more than 10 shareholders, hence this category is not uniformly comprised of "nonfamily" corporations. With the type of classification used by the Census of Agriculture for incorporated farms, it is in fact inappropriate to talk about incorporated "family" and "nonfamily" farms. Again, this problem can be overcome somewhat through special tabulations, since information was obtained on whether the owner lived on or off the farm and the number of hired workers.

c. The percentage of all corporate farm operations viewed as incorporated "family" farms will be overestimated

If interpreters of the census information on corporate farms follow the same procedure as they followed for the USDA survey, an extremely high percentage of all farm corporations will be viewed as incorporated "family" farms. This outcome will be a result of equating corporations with 10 or fewer shareholders with "family" farm corporations. As with the USDA survey, however, this will be an incorrect equation. If the incorporated farms had been classified differently, I am quite sure a distinct minority of all such corporations would be FF's or farms employing little or no hired labor (FF's and TF's). Most would be found to have hired managers and hired workers (LSIF's) and/or be farms employing large amounts of hired labor (LTFF's or LSIF's). Unfortunately, however, when the census findings are made public, I am sure the headlines will read "Almost all Farm Corporations Family Farms". I would expect something on the order of 80% of all farm corporations to have 10 or fewer shareholders. Undoubtedly, this type of information will be presented as evidence denying the existence of any problem with "corporate" farms by maintaining a very high percentage of all incorporated farms are "family" farms which have incorporated.

d. The classification of farm corporations will reduce the apparent amount of difference between those farm corporations viewed as "family" and "nonfamily"

As with the USDA survey, I suspect the census will find and report relatively small differences between farm corporations with 10 or fewer or more than 10 shareholders for most farm characteristic averages. Furthermore, relatively small differences will be found between their percentages of all incorporated farms and their percentage of totals for various farm characteristics, such as the percentage of all land operated by corporate farms. The reasons or explanation for the reduction of such differences will be exactly the same as those for the USDA and will not be repeated here. The effects will probably also be the same; i.e., the lack of large relative differences will be used as evidence to support the claim no "corporate" farm problem presently exists.

e. The enumeration procedures will inflate the number of farm corporations above that found by the USDA and will probably reduce the amount of difference between "family" and "nonfamily" farm corporations

If the USDA survey had had high levels of accuracy, the previous statement quite assuredly would be true. Because of possible accuracy problem, I am not sure the latter part of this statement will be observed. The title statement is based on differences in enumeration procedures followed between the two research efforts. Thus, for the USDA it was pointed out, farm corporations were enumerated on a county basis. All the operating units within a county were aggregated, but other operations of the same corporation in other counties or counties in other states were counted separately. The outcome of this procedure was to inflate the number of corporations found, reduce average corporate farm characteristics and reduce the amount of difference in average characteristics between those farm corporations interpreted as "family" and "nonfamily". These effects were increased by the Census of Agriculture because all separate operating units were enumerated, thus different units of the same corporation were not combined even when found in the same county. This procedure will result in more separate corporations reported by the census than the USDA. The largest difference in number should be found between USDA other owned corporations and those Census of Agriculture farms with more than 10 shareholders. This census procedure will also result, however, in decreased average corporate farm characteristics, especially for those with more than 10 shareholders; hence will reduce the amount of difference in average farm characteristics between those corporations with 10 or fewer and more than 10 shareholders. As with the USDA, similar effects are also brought about because farm corporations were not combined on the basis of ownership, thus even though the same persons or the same corporation owned a number of separate farm corporations, each was enumerated separately. Another effect of procedures such as this is to make an accurate assessment of concentration of land ownership and production on the basis of the published census data impossible at the county, state or national levels. To obtain an accurate picture would require that all farms owned by the same persons or corporations be combined at the county, state and national levels.

4. Information About Trends in Farm Types

Probably the best source of information on changes in the numbers and characteristics of farm types has been the Census of Agriculture. Long time-series exist with farms classified by type of operator: owner (part and full), hired manager and tenant. This information shows, for instance, that while hired manager farms decreased by a quarter in number from 1950 to 1964, average farm size increased from 3,439 acres to 4,146 acres, their average value of land and buildings increased from $128,221 to $564,998 and average value of products sold increased from $54,592 to $163,117.[13] Hired manager farms are the closest approximation to LSIF's which can be obtained from existant census data. It is rather ironic that at the very time concern has been greatest with absentee owned farms, with hired managers and hired workers and the need for information about these farms the greatest, the Census of Agriculture decided to discontinue presenting information on hired-manager farms.

Farms are now classified in two ways: by the type of owner (individual or family, partnership, corporation or other); and by the characteristics of the land operated (all owned-full owner, some owned and some rented-part owner, or all rented-tenant). All hired manager farms in 1969 were classified as to the type of owner and according to whether those owners, owned all, some or none of the land operated. Since information apparently was not obtained on whether the farms had hired managers, it appears farms with absentee owners, hired managers and hired workers (LSIF's) will not be identifiable even with special tabulations. It will be possible to cross-classify farms by residence of owner (on-farm, off-farm) and number of hired workers (high-low), so it will be possible to obtain approximations to the farm types suggested by this author (FF, TF, LTFF and LSIF) in a special tabulation.

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[13] Land Tenure In The United States ----, op. cit., p. 15.

5. No Information Was Obtained on the Business Interests of the Corporations Owners or the Business Interests of the Corporation

While the USDA did attempt to obtain this information, no attempt was made in this area by the Census of Agriculture. Without this information, however, it is not possible to assess or determine which types of corporations are moving into agriculture or what the occupations or business connections of corporation owners are, and where these owners might be located.

6. Conclusions

While the 1969 Census of Agriculture has eliminated the accuracy problems associated with the USDA survey, the same problems of interpretation are found, stemming from the way in which farm corporations were classified. One advantage of the Census material is that special tabulations can be carried out with farms classified different from those used initially. I do, in fact, think such tabulations should be made and would suggest farms be classified by the four types I have suggested. Without special tabulations the major conclusions about the absolute and relative characteristics of "family" and "nonfamily" farm corporations will be highly similar to those from the USDA survey.

IV. Some Characteristics of Wisconsin Incorporated LSIF's

As Professor Wilkening pointed out earlier, we have carried out rather extensive research on incorporated Wisconsin farms. It was possible in this research to obtain information about these farms, their owners, managers and workers not obtained by the USDA in its survey or by the Census of Agriculture. Following are some of the findings of this research which might be of interest to you.[14]

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[14] This information is summarized from: Wisconsin Incorporated Farms I: ----, op.cit.

A. FF's had an average total work force of 4.2, versus 13.7 for LTFF's and 15.6 for LSIF's.

B. LSIF's were located in areas and on farms with lower soil quality and fertility than FF's and LTFF's. This was also reflected in LSIF per acre market values two to three times lower on the average than those for FF's and LSIF's.

C. Over half of all FF's and LSIF's, and 42% of the LTFF's planned to expand the size of their operations in the future if land was available.

D. Major differences existed between the types of farms in their areas of production for sale, percentage of production accounted for and acreage characteristics.

E. Twenty-one per cent of the FF's had sales in 1968 exceeding $100,000 while this was true for 54% of the LTFF's and 57% of the LSIF's.

F. FF's had an average net worth (gross worth or value minus total indebtedness) of $183,580, while LTFF's averaged $332,738 and LSIF's $462,055.

G. Eleven per cent of the FF and 26% of the LSIF corporations had nonagricultural activities which ranked first in sales.

H. About one-third of the LSIF corporations had business interests in addition to agricultural production. About half of these were involved in the processing of agricultural products, while 41% were not related to agriculture.

I. Only about one-quarter of the LSIF's had evolved from FF's or LTFF's. The remainder originated from outside of farming.

J. About 90% of the FF and LTFF major stockholders started their occupational careers in farming. This was true for only 33% of the identifiable LSIF major stockholders and only 19% presently had a farm occupation.

K. Two-thirds of the identifiable major stockholders of LSIF's were owners or executives of nonfarm businesses and about 20% were professionals.

L. One-third of all LSIF's had begun agricultural production since 1964.

V. Some Aspects of Corporate Secrecy Hindering Effective Research

A more appropriate title for this section, perhaps, would be "Problems in carrying out research on corporations with agricultural production." One of these problems is, in fact, corporate secrecy, but other problems also exist not directly related to corporate policy.

A. It is extremely difficult to identify corporations with agricultural operations. Where such enumerations have been made, such as the census, corporation names and addresses are inaccessible. In Wisconsin 50,000 corporation tax records had to be reviewed in an attempt to identify those with agricultural operations. This was an expensive and time consuming process. If "corporate" farms are defined as LSIF's, these farms are even more difficult to identify. Obviously, if farm corporations or LSIF's can't be identified, neither the farms or their owners and personnel can be studied.

B. Even if corporations are identified, it is difficult, if not impossible, to get their stockholder lists and the percentage of stock owned by each stockholder. In most cases, this information would have to be obtained from the corporation's personnel. It is questionable how readily this information would be provided. Without this information, major stockholders could not be identified or studied.

C. Since social scientists do not have the force of law behind their research efforts, the good will of corporation personnel must be relied upon to cooperate and provide accurate and complete information. While this has not been a major problem in our research to date, I suspect the greater the amount of unfavorable publicity given to "corporate" farms, the greater the resistance will become.

D. At present, it is almost impossible for individual researchers to assess the total characteristics of corporations with operations in more than one state. The only realistic possibility is that perhaps the Census of Agriculture could compile this from information it possesses.

E. While this discussion so far has been concerned with corporations, another question perhaps even more important for some purposes is "who owns America's farms?" or more specifically "who are the individuals who own America's farm land, and what are their characteristics?" To my knowledge, this question has never been adequately answered. The Census of Agriculture, for instance, in the past has enumerated farm operators, not owners. Thus, the owners of hired manager farms and tenant farms have not been enumerated. Even with the changes in the 1969 census, tenant farm owners were not enumerated. Farms also have been enumerated on an operating unit basis,not in terms of all farms with the same owner.

These problems are even greater if corporations are dealt with. In order to assess individual ownership, the names of corporation stockholders would be necessary along with their percentage of stock ownership. This information would also be necessary to aggregate all land owned by different corporations with the same stockholders or the same major stockholders. Since land has not been aggregated on an ownership basis, we really have no good idea of what the levels of land and agricultural production concentration are at this time for the nation as a whole or for individual states.

VI. Wisconsin Research Results Suggestive of Community Effects Associated With A Change from "Family" to "Corporate" (LSIF) Farms

It was suggested earlier that a change from "family" to "corporate" (LSIF) farms would or might be accompanied by three specific changes in farm characteristics with community implications. These specific characteristics were: absentee farm ownership; the man: land ratio and the composition of the rural farm work force. Limited information was obtained in the Wisconsin research on what independent effects might be associated with a change from nonabsentee to absentee farm ownership. Information was obtained, however, suggestive of what changes in the man: land ratio and the rural farm work force composition would accompany a change from "family" to "corporate" (LSIF) farms and what the effects of these changes might be.

A. Changes in the Man: Land Ratio and Possible Effects

Detailed information was obtained in the questionnaire survey of Wisconsin incorporated farms on the size of each farm's work force and acreage characteristics. With this information, it was possible to estimate the man: land ratios of all incorporated farms by type of farm. In Wisconsin, the incorporated FF total work force (owners and family, hired full-time workers and seasonal man year equivalent [MYE] workers) was found to operate an average of 86 crop acres per man, while the incorporated LSIF total work force (hired mangers full-time and seasonal MYE workers) operated an average of 117 crop acres per man. The averages per man for full-time owners, hired managers and workers were 140 acres for FF's and 206 acres for LSIF's. These latter figures would indicate 32% fewer managers and full-time workers were required for each crop acre by LSIF's than FF's.[15] While type of production was not controlled, such a procedure should increase the differences since LSIF's were disproportionately found in more intensive types of production. While these figures undoubtedly reflect higher levels of productivity per manager-full-time worker for LSIF's, they also indicate rural depopulation will be great in a change from FF's to LSIF's, unless offset by other forces. If the change is from average FF's to LSIF's, the loss will probably be even greater since the incorporated FF's averaged 335 acres each, while the average for the state was 101 acres.[16] This change in the man: land ratio and resulting population loss will have a number of independent community effects associated with it, all other factors constant. Some of the more important of these changes or effects will be:

1. The number and variety of voluntary, special interest organizations will decline.
2. An absolute decline in church membership and contributions, and perhaps the number and variety of church related organizations and activities.

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[15] Rodefeld, R.D., "Farm Types As Related to the Question of Enhancing and Preserving Rural Communities", an unpublished (MI), presented as testimony before Governor-elect Patrick Lucey's Budget Hearings, Eau Claire, Wisconsin, December, 1970, p. 19.

[16] Rodefeld, R.D., *Wisconsin Incorporated Farms I: ----, op. cit.*, pp. 16-17.

3. A reduction in rural farm political power not only locally but also at the congressional, state and federal levels.

4. Increased abandonment of farmsteads with a resultant decrease in local tax revenue.

5. An absolute decline in the quantity or volume of personal and family related goods and services purchased and possibly farm related goods and services.

6. A decline in the number and variety of community businesses.

7. Increased concentration of land ownership.

While these would seem to be the major effects of a declining man: land ratio, any outcome of rural depopulation could be added to this list.

B. Changes in the Composition of the Rural Farm Work Force and Possible Effects

The general concern here is with the nature of the relationships between the farm population and the community within which they reside. These relationships could have as their referrents other individuals or community organizations and institutions. A change from "family" to "corporate" (LSIF) farms by definition will drastically alter the composition of the rural farm population. Resident farm owners and their families will be replaced by hired managers, workers and their families. Major community effects or changes could accompany such a change in farm types if the two populations ~~are~~ were found to vary in the nature of their relationships to the communities within which they reside. The information in Table 3 suggests such differences may well exist.

TABLE 3

Average Community Related Characteristics of Wisconsin Incorporated FF Owners, Hired Full-Time Workers and LSIF Managers, 1970[17]

	FF Owner (38)	Full-Time Worker (70)	LSIF Manager (27)
Descriptive Information (Respondent)			
Age	45.3	42.0	45.0
Years of education	11.6	10.2	11.9
Years lived in community	34.8	19.6	18.5
Magazines and newspapers subscribed to	8.8	3.4	8.3
Voluntary Organization Membership			
Total (Respondent)	2.9	.4	1.5
Total (Husband and Wife)	3.5	.6	2.4
Total (Family)	6.1	1.9	6.4
Number of school activities (Children)	5.2	3.2	5.9
Church Related Characteristics			
Per cent members	84.0	84.0	96.0
Contributions per week	$ 7.18	$ 2.10	$ 7.87
Political and Public Leadership Participation			
Per cent with a "great deal" of interest in local politics	32.0	10.0	26.0
Number of 11 political activities participated in	4.2	1.0	4.3
Per cent of 8 recent elections eligible for and voted in	80.5	48.3	69.0
Number of 11 public leadership positions ever held	.70	.17	.81
Economic Characteristics			
Gross family monthly income	$3574	$ 621	$ 1765
Net family monthly income	987	517	948
Net worth (gross worth minus indebtedness)	$123,850	$ 15,876	$ 61,675

TABLE 3, continued

	FF Owner (38)	Full-Time Worker (70)	LSIF Manager (27)
Level of Living (Number of 20 items possessed)	16.6	13.4	15.9
Support of Local Businesses			
Per cent of 11 personal goods bought locally when available	56.4	56.5	62.4
Per cent of 11 farm goods bought locally when available and applicable	55.0		43.6

It was found in the Wisconsin research that approximately 88% of the incorporated LSIF work force was composed of hired workers (76% full-time) and 12% hired managers. The major comparisons in Table 3, then should be between FF owners and hired full-time workers. A comparison of the average community related characteristics of these two groups suggests the following community effects would accompany a change from FF's to LSIF's, all other factors constant:

1. Levels of age, education, residential stability and information possessed will decline.
2. The number and variety of voluntary organizations will decline and the support of extra-curricular school activities will decline.

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[17] The figures appearing in this table were derived from E.A. Wilkening and R.D. Rodefeld, Wisconsin Incorporated Farms II: Characteristics of Resident Owners, Hired Managers and Hired Workers, Center for Applied Sociology, (MI) Department of Rural Sociology, University of Wisconsin, Madison, December, 1971 and previously unpublished data.

3. Church membership will remain about the same but contributions will decline.

4. Interest in local political issues will decline and political participation will decline.

5. Economic stratification will increase, level of living will decline, and the amount of revenue available to be spent in the local community will decline.

6. Little change will occur in the extent to which personal and family related goods and services are purchased in the local community.

C. Conclusions

Differences in the man: land ratios of FF's and LSIF's and differences in community related characteristics of the work forces associated with these two farm types suggest rather major community effects will accompany a change from one type to the other, all other factors constant. The magnitude of the effects will vary depending on the size of the community's population center (or the proportion of the community's population rural farm), the proximity of the community to larger population centers, and the amount of nonfarm employment available. The magnitude of the effects will be even greater to the extent LSIF's employ seasonal or migrant workers rather than full-time year round hired workers.

D. Effects Associated With Other Farm Type Changes

If these are in fact the major causal variables at the farm and community level, then a number of additional interesting questions are suggested. For instance, what effects would be brought about in communties where "family" farms were replaced with LTFF's? This is a legitimate question since it appears there is a trend toward larger-than-family farms as defined by amount of labor hired. For instance, these farms accounted for 30.4% of all farm sales in 1959 and 35.4% in 1964. Their percentage of all farms increased from 4.5% to 4.9% in the same time period.[18] Eighty-nine per cent of the incorporated LTFF work force was found to be composed of hired full-time and seasonal man year equivalent workers, almost exactly the same as for LSIF's.[19] The man:land ratio for this type of farm also will undoubtedly be found to be more similar to that of LSIF's than FF's. To the extent these two characteristics of LTFF's approximate those for LSIF's then the same community effects a function of these characteristics will also be observed. The only major difference between LTFF's and LSIF's is that LTFF's do not have absentee owners; hence, the effects a function of this characteristic will not accompany LTFF's. The point, however, is that the bulk of community effects associated with a change from FF's to LSIF's might also occur with a change from FF's to LTFF's. Ideally, research should be carried out on the effects of this latter change also.

Another point worth making is that FF's are also getting larger and have a decreasing man:land ratio. Even if all farms other than FF's were not allowed, rural depopulation unless off-set by other forces, would still occur along with the community effects a function of population loss. An important point, however, is that population loss will be minimized with either FF's or TF's, and FF's will not have those effects associated with absentee ownership and a high proportion of the work force which is hired workers.

VII. Comments on Professor Goldschmidt's Study of Arvin and Dinuba

As pointed out earlier, Professor Goldschmidt's 1946 study of Arvin (large farm) and Dinuba (small farm) has been the only study which has directly addressed the question of what effects would accompany a change from "family" type farms to

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[18] Nikolitch, Our 31,000 Largest Farms, op.cit., p. 39

[19] Rodefeld, R.D., Wisconsin Incorporated Farm I: ----, op.cit., p. 75

"nonfamily" or "corporate" farms. Given the basic interrelationships between a community's population center (especially smaller centers) and the farms in the community's hinterland, I find it quite surprising so little research has been carried out on the nature of this relationship. If such research had been carried out, we would be in a better position to specify what effects at the community level, under what conditions, would accompany a change from "family" to "corporate" (LSIF) farms.

The major findings of Professor Goldschmidt's research are well known and will not be repeated here. Instead, the applicability of this research to the contemporary concern with "corporate" (LSIF) farms will be examined. First, studies such as Professor Goldschmidt's should be carried out in other regions of the country to test the generality of his findings. The communities and region studied by Goldschmidt vary in significant ways from most parts of the country. For instance, the types of production were very labor intensive (grapes, fruit, vegetables and cotton), large numbers of seasonal or migrant workers were used and irrigation was used. Would the same general effects of a change from "family" to "corporate" (LSIF) farms be observed in other regions of the country with different characteristics, for instance, the corn, wheat and dairy belts? Would the magnitude of the effects be the same?

Second, Goldschmidt controlled on certain factors which themselves will influence the extent to which farm changes have an effect on the total community. For instance, how would the effects observed by Goldschmidt been affected if the population centers had been larger and the rural proportion of the total community population lower? How might these effects been modified if the communities had been within commuting distance of larger population centers?

Third, in controlling for population size, land in farms and types of production to a lesser degree, Goldschmidt essentially controlled for the population density or man:land ratio of the community's rural hinterland. I have suggested one of the major changes from FF's to LSIF's might, in fact, be a reduction in the rural farm population density. Since this change would have major community implications on its own accord, research should determine whether ~~or~~ LSIF's have a lower man:land ratio, ~~not this is true~~, and what the magnitude of this reduction might be. This should be done for all major regions and/or types of production.

Fourth, while scale of operation was isolated by Goldschmidt as the major causal variable, the specific farm characteristics given greatest causal significance were the proportion of the total work force wage-laborers and the proportion of farms absentee owned or tenant operated. What are the independent effects, and relative weights, of these variable, however? To what extent, for instance, would the same effects been observed in Arvin had the proportion of absentee ownership been the same as in Dinuba, but the proportion of the work force wage-laborers remained the same? If absentee ownership, man:land ratio and occupational distribution are viewed as three of the more important farm characteristics affecting community characteristics, what are the independent effects of variations in each?

Fifth, a good deal more must be known about the causal relationship between the proportion of the work force hired laborers and community characteristics. Goldschmidt suggests levels of income, education, residential stability and community loyalty might be among the more important variables here. If this is true, as these characteristics increase over time, the community situation should improve. But how much? Which variables are most important? To what extent will such improvements off-set the ~~initial~~ in loss which occurs when FF's are replaced by LSIF's?

It would also be desireable in future research to study specific communities, where a change had occured from "family" to "corporate" farms. Professor Goldschmidt attempted to determine what effects would accompany such a change by comparing the characteristics of two communities at one point in time which varied in their farm types but were similar in other basic characteristics. This procedure, even when as well done as by Professor Goldschmidt, has its reservations and shortcomings. The surest and least questionable procedure is to moniter the effects of such a change as it occurs within a community. Another similar procedure would be to find communities where a change had occured from "family" to "corporate" farms and carry out a social and economic reconstruction of the community characteristics preceding and following the change.

VIII. Proposed Research to Determine the Effects at the Community Level of a Change from "Family" to "Corporate" (LSIF) Farms.

A. The Problem

It would appear that if present conditions remain unchanged, a high probability exists family type farms will increasingly be replaced by "corporate" or large-scale-industrial type farms. As this change proceeds farms owned, managed and worked by families will be replaced by farms with absentee owners and non-owning hired managers and workers. There is reason to believe one of the major concommitants of this change will be a decreasing man:land ratio. The findings of Professor Goldschmidt and the Wisconsin research suggest this change in farm type will result in numerous effects at the community level. These effects will probably become greater the smaller the community is. No research has been carried out, however, in communities which have actually experienced a change from "family" to large-scale-industrial type farms.

Because neither of the communities studied by Goldschmidt had actually experienced a change in farm types certain questions could not be answered. For instance, if the small farms in Dinuba had actually been replaced by farms like those in Arvin there is reason to believe the community of Dinuba would become similar to Arvin. But how similar? The social and economic patterns and institutions of Dinuba would be expected not only to resist the effects of such a change in farm types but also would employ adaptive mechanisms to lessen these effects. Since Dinuba had not experienced such a change we do not know what adaptive mechanisms would be employed, hence we do not know how similar to Arvin, Dinuba would become. Furthermore, Goldschmidt's study provides no insight as to the process through which the family farms of Dinuba would or might be replaced with farms like those in Arvin. What would cause the family farmers of Dinuba to stop farming? Were they forced out because of economic reasons? Did their owners retire or die? Or, were they induced to sell by a high offer for their farm? Perhaps the present family farms of Dinuba are evolving over time to become more like those in Arvin. To answer such questions longitudinal studies of communities which have experienced a change in farm type should be carried out.

The approach taken in the Wisconsin research is also inadequate to answer questions about the effects accompanying a change from FF's to LSIF's. Statements can be made about community change with this approach if certain assumptions are made, such as, all other conditions equal or constant. In real life, of course, these other conditions do not usually remain constant and are usually interrelated in complex ways. Information from individuals can be suggestive of what the effects of varying conditions are and what the nature of the interrelationships might be but they will remain as tentative hypotheses until they are subjected to testing in an actual change situation.

Another problem with statements about community change derived from individuals is the contextual fallacy, i.e., inferring the properties and behavior of collectives from the characteristics of individuals. It is inappropriate, for instance, to suggest a population of LSIF managers and workers in a specific community will have the same community related characteristics as those observed from a random sample of all such managers and workers in the state or nation as a whole.

What is needed is longitudinal studies of specific communities where a change has occurred in the hinterland from "family" to large-scale-industrial type farms. Two such types of studies could be carried out with this approach. First, the characteristics of the community before the change occurred would be assessed. As the change in farm types took place the community effects of the change would be recorded. When the change was completed the characteristics of the community before and after the change could be compared. A second approach would be to reconstruct the relevant characteristics of the community before the change occurred and compare them to the characteristics observed after the change had taken place. The first approach is the ideal, while the second is the more realistic.

B. Proposed Research Design: Four Communities would be selected using the following criteria.

1. They would be located in the Midwest-Great Plains regions.
2. They would have experienced a significant FF to LSIF change in the last 10-15 years.
3. They would have approximately the same size population centers. They would probably be selected within a range of from 1,000 to 5,000.
4. They would vary by the major type of agricultural production in the rural hinterland. For the regions suggested these would be: dairy, livestock, grain and vegetables - canning.
5. They would be located away from major metropolitan centers.

C. Rationale for Proposed Research Design.

While it would be desireable to study changes from FF's to LSIF's in all U.S. regions there are some reasons why this change should particularly be studied in the Midwest-Great Plains region. The major reason is that the proportion of all farms which are FF's is greatest for these regions at this time. Thus, the magnitude of the effects associated with a change from FF's to LSIF's would probably be greater for these regions than any other. Assuredly the magnitude of the effects of such a change would be greater than if the farm change was from LTFF's to LSIF's. These regions also account for the greatest percentage of the value of all farm products sold and are second in the number of farms and rural people (the South is first).

As Professor Wilkening has pointed out there are undoubtedly few communities in the Midwest or Great Plains composed entirely of LSIF's. Given this fact, it is quite unlikely any communities will be found in these regions where a change has occurred from a predominance of FF's to a predominance of LSIF's. However, I do think communities can be found where within the last 10-15 years one or a number of extremely large LSIF's have replaced FF's. I know of one such farm myself of approximately 5,000 acres which replaced 30-35 former FF's. This should be a large enough change so that if, in fact, major effects are associated with a change from FF's to LSIF's they should be observable.

Given the larger numbers and importance of LSIF's in other regions of the country it is tempting or would appear easier to carry this research out there. There will be two problems, however, with such research. First, because of the differences in types of production (highly intensive [fruit, vegetables, etc.] or highly extensive [cattle racches]), types of hired workers employed (large inputs of migratory workers) and historical tenure patterns there will be major problems of generalizing from such research to the Midwest and Great Plains.

Second, even though more LSIF's are found in other regions I would suspect that most of them have been that way for a long time or have replaced LTFF's. It actually might be more difficult in these regions to identify communities where a recent major change had taken place in terms of FF's being replaced by LSIF's. A 10-15 year time period is specified since the shorter the specified time period the greater the ease will be of obtaining information on the characteristics of the community before the change took place.

It would be important to control on size of population center to reduce the effects associated with variation in that characteristic. The predominant types of agricultural production have been selected as representative of the major types of production in the region. This will also allow an assessment to be made of the relationship between type of production and the magnitude of the effects accompanying a change from FF's to LSIF's. The effects of such a change might be greater, for instance, for dairy areas than grain areas. The approach suggested here will not only discover any such relationships but should also be able to explain why the differences occurred. Ideally, the communities studied would be located away from metropolitan centers since this is true for the majority of rural people and the confounding effects of close proximity to such centers can be controlled.

D. Methodological Procedures: Major Groups Studied

1. Personal interviews
    - a) Former FF owners or relatives (if deceased)
    - b) Present workers and or residents on LSIF's
    - c) Family farm control group: matched with former FF's
    - d) Selected local business owners and representatives of community institutions

2. Questionnaires
    - a) Former FF owners (or relatives of same) if not presently local residents
    - b) Present owners of LSIF's (if low in proximity)
    - c) Farmers adjacent to LSIF's
    - d) Local business owners
3. Secondary data analysis
    - a) Local tax records
    - b) Farm auction records of former FF owners
    - c) Local farm related business data
    - d) Real estate records
    - e) Census data
    - f) Local newspapers
    - g) Plat books

E. Major questions to be addressed in the research

1. What differences exist between the former FF's, present LSIF's and control group farms for a number of characteristics?
    - a) Conservation practices
    - b) Value of machinery, buildings, livestock, production, sales
    - c) Man:land ratio
    - d) Proportion of gross and net farm income remaining in community
    - e) Marketing and purchasing patterns of farm related goods and services
    - f) Governmental subsidies received

2. What differences exist in the characteristics of former FF owners and their families, and those presently residing on the same land and the control group?
    a) Membership and participation in community voluntary organizations
    b) Income characteristics, proportion spent locally
    c) Purchasing patterns ~~of~~ for personal and family goods and services
    d) Political participation
    e) Religious participation
    f) Levels of residential stability
    g) Education characteristics
    h) Population characteristics (number, age distribution, dependency, ratio, etc.)

3. Information from interviews, questionnaires and secondary data analysis will be used to answer the question, "What changes have taken place in the community since the establishment of LSIF's?"
    a) Number and variety of businesses and volume of business
    b) Tax revenue
    c) Area land values
    d) Number, variety and membership of voluntary organizations
    e) Number, membership, levels of participation in churches
    f) Political participation
    g) Population size and structure
    h) Number, variety and volume of service organizations (doctors, lawyers, dentists, etc.)

F. Proposed time Schedule

1. Initiation data: October 15, 1972
2. Duration of project: 2 years
3. Time Schedule

a) Community selection, site visits, field work	2 months
b) Development of research instruments	2 months
c) Selection of interviewers, training, construction of sampling lists, identification of secondary data sources	2 months
d) Study of Community I	1 month
e) Interviewing in Communities II - IV Assuming 150-200 interviews at three (3) a day per community	2 months
f) Collection of secondary data	1 month
g) Coding of data, punching of data	2 months
h) Data analysis - preliminary results	6 months
i) Final report	6 months
	24 months

G. Proposed 2 Year Budget

Project director, 2 years @ $ 7,000 per year	$ 14,000
Project Assistant: Full-time: 2 years @ $ 10,000 per year	20,000
Interviewers: 3 for 10 months each @ $ 8,000 per year	20,000
Typist - Full-time: 2 years @ $ 6,000 per year	12,000
Travel, Expenses	5,000
Consultants	2,000
Card Punching	2,000
Computer	4,000
Supplies	1,000
	$ 80,000

These costs are approximations and could eventually be revised either upwards or down. After the four communities have been selected for study and the initial field work completed it will be possible to specify the total costs more accurately. After this stage of the research is completed travel costs will be known and the approximate number of interviews and questionnaires.

Statement Prepared for the

SUBCOMMITTEE ON MONOPOLY OF THE SELECT COMMITTEE ON SMALL BUSINESS

United States Senate

Senator Gaylord Nelson, Chairman

Hearings on

CORPORATE SECRECY: AGRIBUSINESS

By

WALTER GOLDSCHMIDT, Professor of Anthropology

University of California, Los Angeles

Re

RESEARCH INTO THE EFFECTS OF CORPORATE FARMING ON THE QUALITY OF RURAL COMMUNITY LIFE

Wednesday, March 1, 1972

Room 318, Old Senate Office Building

Washington, D.C.

I am the author of a study entitled, "Small Business and The Community; A Study in Central Valley of California on Effects of Scale of Fram Operations" which was executed in 1944 and published by this Committee on December 23, 1946 and republished by your Committee in 1968. This study documents what happens to the quality of rural life when the land is dominated by large agribusiness as compared with communities in which independent family-sized and family-operated commercial farms, of the kind that have been the bulwark of American democracy, comprise the economic base. Corporate farming has long dominated the California rural scene, though there are also areas in which the land was divided into small family-sized plots and where the traditional form of American agriculture is to be found.

In the quarter century since the publication of that study, corporate farming has spread to other parts of the country, particularly to the American agricultural heartland which has always been the scene of family-sized commercial farmers. This development has, like so many other events of the period, been assumed to be natural, inevitable, and progressive, and little attention has been paid to the costs that have been incurred. I do not mean the costs in money, or in subventions inequitably distributed to large and small farmers. I mean the costs in the traditions of our society and its rural institutions.

It is my purpose here to impress upon your Committee the need to examine both the causes and the effects of the increased encroachment of agribusiness on American rural life, and I believe that you will find that my earlier study can serve as a model for parts of such an examination. It may be that the social effects of large-scale corporate farming that were demonstrated to have taken place in California no longer prevails; it may be that the conditions that obtained then in California do not appear in the Middle West and South of the 1970's, and if this is the case, it is important for us to know. I myself am convinced, however, that the results of the earlier study will be substantiated because I believe that the causative forces are inexorable; that corporate farming creates an urbanized and impoverished rural community. If I am right in this belief, then the information derived from the study of the influence of corporate farming on rural life can serve as a powerful incentive for reformulating American agricultural policy. This will be particularly true if we find that similar effects appear in the American heartland, for it was possible in the 1940's to consider corporate farming to be merely an aberation characteristic of California, like its evangelical sects and its movie star politicians. It is important to know what is happening now, and what is happening outside of California.

In order to impress upon you the importance of undertaking such a study, it will be necessary for me to present some of the details of the events and the character of the conclusions surrounding the earlier work. I will have to be somewhat autobiographical and I trust that I am not yet so old as to be in my anecdotage and can keep this discourse to a minimum.

I am an anthropologist; while still a graduate student I became interested in the possibility of using the techniques and the theories of anthropology for the study of the modern American community. I was supported in my dissertation by a fund made available by M. L. Wilson, then Director of the Extension Service, to the Bureau of Agricultural Economics, U.S.D.A. My study of Wasco, a town in the San Joaquin Valley, was completed in 1941. It served as the dissertation that was required for the Ph.D. degree which I received in 1942 from the University of California, Berkeley, by which time I was on the regular staff of the B A E. This study of Wasco showed that the industrialized farming that characterizes San Joaquin Valley resulted in an urbanized rural life; with appropriate revisions it was published under the title, As You Sow, first by Harcourt and Brace and later by the Free Press of Glencoe, Illinois, which later became a part of Macmillan.

Shortly after the completion of this study, I was seconded to a task force engaged in research on the Central Valley Project under the general direction of Dr. Marion Clawson, funding for which was provided by the Department of Interior. The Central Valley Project Studies consisted of a collaborative effort to provide answers to a number of basic policy questions resulting from the engineering plans then underway. Various agencies of the state and federal governments collaborated on these studies, and the general results were published as reports of the several committees. One of these questions dealt with the problems attendant upon what is generally called the acreage limitation law and the implications for the application of that law to lands supplied by waters developed under the giant reclamation project in California. This question read, in part, as follows: What effects will this project have on agricultural economy and rural life in the Central Valley . . .?

This question is amenable to direct empirical investigation and it was in partial response to it that the study under discussion was initiated. This study may therefore be considered as background investigation in the service of the committee dealing with this question. The study was formulated on strict scientific principles of controlled comparison. This meant two things: (1) We had to select two towns which were comparable in all basic economic characteristics except for the matter of scale of farm operations, and (2) we had to establish verifiable criteria for the impact of the diverse economic organization upon the community life. We limited our investigation to the San Joaquin Valley, which was the target area for the agricultural development of the Central Valley Project. Fortunately, within this area, there is a general comparability of soil, climate, etc. and there are, at the same time, extreme differences in size of farm operations. On the basis of a number of considerations as to what elements should be held constant, we ultimately selected the town of Arvin, in southeastern Kern County, as representative of the large-scale, corporate farm operations, and Dinuba, in northern Tulare County to represent the family farm situation. In each of the two communities we examined public records, interviewed community leaders, and ordinary citizens, and took a questionnaire from a scientifically constructed random sample of the population. This questionnaire was designed to give us the following information: (1) household composition, occupation, nature of farm enterprise (for farm operators) and the like; (2) social participation in community affairs, (3) economic status and participation and (4) level of living. In addition to the information that I and my team assembled in the field, we had accurate information provided by others on the following items: (1) the limits of the community as determined by a team of rural sociologists, (2) the size of farms by two measures obtained from the records of the Agricultural Adjustment Agency by economists equipped to analyze such data, (3) the total value of agricultural products from the previous year obtained in the same manner and from the same source, and (4) the value of retail sales by major categories of business enterprise obtained from the state sales tax records.

The difference between the two communities was impressive; they were set forth in my summary of findings and should perhaps be placed in the record here:

(1) The small farm community supported 62 separate business establishments, to but 35 in the large-farm community; a ratio in favor of the small-farm community of nearly 2:1.

(2) The volume of retail trade in the small-farm community during the 12 month period analyzed was $4,383,000 as against only $2,535,000 in the large-farm community. Retail trade in the small-farm community was greater by 61 percent.

(3) The expenditure for household supplies and building equipment was over three times as great in the small-farm community as it was in the large-farm community.

The investigation disclosed other vast differences in the economic and social life of the two communities, and affords strong support for the belief that small farms provide the basis for a richer community life, and a greater sum of those values for which America stands, than do industrialized farms of the usual type.

It was found that--

(4) The small farm supports in the local community a larger number of people per dollar volume of agricultural production than an area devoted to larger-scale enterprises, a difference in its favor of about 20 percent.

(5) Notwithstanding their greater numbers, people in the small-farm community have a better average standard of living than those living in the community of large-scale farms.

(6) Over one-half of the breadwinners in the small-farm community are independently employed businessmen, persons in white-collar employment, or farmers, in the large-farm community the proportion is less than one-fifth.

(7) Less than one-third of the breadwinners in the small-farm community are agricultural wage laborers (characteristically landless, and with low and insecure income) while the proportion of persons in this position reaches the astonishing figure of nearly two-thirds of all persons gainfully employed in the large-farm community.

(8) Physical facilities for community living--paved streets, sidewalks, garbage disposal, sewage disposal, and other public services--are far greater in the small-farm community; indeed, in the industrial-farm community some of these facilities are entirely wanting.

(9) Schools are more plentiful and offer broader services in the small-farm community, which is provided with four elementary schools and one high school; the large-farm community has but a single elementary school.

(10) The small-farm community is provided with three parks for recreation; the large-farm community has a single playground, loaned by a corporation.

(11) The small-farm town has more than twice the number of organizations for civic improvement and social recreation than its large-farm counterpart.

(12) Provision for public recreation centers, Boy Sout troops, and similar facilities for enriching the lives of the inhabitants is proportioned in the two communities in the same general way, favoring the small-farm community.

(13) The small-farm community supports two newspapers, each with many times the news space carried in the single paper of the industrialized-farm community.

(14) Churches bear the ratio of [illegible] : 1 between the communities, with the greater number of churches and churchgoers in the small-farm community.

(15) Facilities for making decisions on community welfare through local popular elections are available to people

in the small-farm community; in the large-garm community such decisions are in the hands of officials of the county.

The body of the report presents in detail the statistical information regarding these differentials just summarized.

The body of the text had also to perform another task. While the study was built on the principle of controlled comparison and every effort was made to avoid the existence of other independent differentiating factors that might account for these variances, the real world does not provide a perfect natural laboratory and it was necessary to examine other potential factors. It was, for instance, very important to discover that the economic base of the two communities was virtually identical (there was about 4% difference in gross farm income). The impoverished appearance and the impoverished condition of the Arvin residents could not, therefore, be attributed to relative economic povertyas measured by the objective criteria available to us. This recognition of the economic base is a very significant finding, for if you had visited Arvin and Dinuba at the time, you would certainly have thought that Arvin was in a virtual economic Appalachia rather than a town in the richest fertile valley of our country. I want also to emphasize another point here; namely, that this economic information was developed by economists, not by me. It was therefore not affected by any bias, conscious or unconscious that I might have had, and which I was accused of having been guilty of.

We had also to examine the implications of the fact that Arvin was a much younger town than Dinuba and that it might be argued that the facilities that characterized Dinuba had simply not yet been developed in the younger town. Fortunately, we were able to develop data on the history and growth of population, using such reasonable measures as the daily average attendance in schools. We found that when we shifted the time date twenty years, the growth patterns of the two towns followed a closely parallel curve. We thus could show that many of the facilities which had appeared in Dinuba quite early on that growth curve did not appear in Arvin until much later and in many instances had not, at the time, appeared there at all (this information is set forth on figure 20, page 99). We also could make comparisons between Arvin and other towns (including Wasco, the subject of my earlier study) to show similar differentials and to demonstrate that the differential between the two communities could not simply be attributed to the age of the two towns. I find it remarkable that after the study was published, its critics kept reiterating this hypothesis that Arvin was merely a younger town, completely overlooking the fact that I had effectively made this a meaningless argument by the data in the report. Thus, for instance, the late Senator Sheridan Downey, in a privately published polemical book dealing with the Central Valley Project, called They Would Rule The Valley, bases his critique largely on this assumption.

I should say that we were never satisfied with the idea of making a comparison of two towns only, but had from the outset planned a second-phase of the study. We were prevented from doing this. The story of why we were so prevented is perhaps more revealing of the problems derived from large-scale operations than would have been the research itself, and I must therefore review these events briefly. But first I will describe what the second-phase of our study was to have been like.

Using the differentials between Arvin and Dinuba, we intended to develop something like an index of community quality. This index (or the several items analyzed separately) would be based upon the salient differences found between Arvin and Dinuba, but consisting of items that could readily be obtained either from published sources, by direct inquiry, or by direct observation. We had in mind such things as: The number of churches, civic organizations and extra-curricular school clubs such as Boy Scouts; acreage in public parks; number and kind of retail outlets locally available; the existence of such institutions of democratic concern as a town council; the existence of such important local enterprises as newspapers and banks; the number of teachers residing in the community and their average length of tenure. In short, this index would have consisted of those elements that are the external expressions of the qualities of good rural community. Once we formulated such an index, it would be possible to plot the values obtained against the farm size of each of the 25 communities in the San Joaquin Valley, as listed on Table 1 of the study. Thus we might have created a scale representing the summation of these elements so that a high score placed a town at the Dinuba end and a low score at the Arvin end, and shown that this diversity correlated negatively with size of farm. Or, we might have discovered a kind of cut-off point--when farm size exceeds a certain level, all or most of these items disappear from the local scene. We don't know because, as I have said, I was not allowed to engage in this phase of the work. But you can readily see that this would have been a powerful tool for the study of the relationships that I, as a public servant, had been asked to examine. It would, incidentally, have had another effect; de-emphasis of attention to the two towns as such. (I have always felt that it was a matter of some unfairness that so much emphasis was placed upon the town as an individual social entity; I certainly had neither the desire nor the intent to cast aspersions upon the citizenry of a community.)

I was ordered by my Bureau chief in Washington not to undertake the second-phase of the study. He did so in response to a build-up of pressure from politically powerful circles. These same sources of influence would have, as a matter of fact, prevented the publication of the report itself, had it not been for the existence of this important Committee and the actions of the late Senator Murray of Montana. I was told, Mr. Senator and gentlemen, that the official manuscript of the study was literally in the file drawer of the desk occupied by Clinton Anderson, then the Secretary of Agriculture, and that it was released to Senator Murray only upon his agreement that there would be no mention anywhere in the published report of the Department of Agriculture. It was in response to this directive that I forewent those appropriate and traditional acknowledgements to the many colleagues and coworkers who had made this study possible and successful. (I hope that some of these may read this testimony and accept this belated explanation for my apparent oversight, along with my apologies.)

I could regale this Committee beyond its endurance with stories about this public pressure--as for instance our small research team (myself and two enumerators, one of whom was my wife) listening to ourselves being vilified on the radio each noon, as we ate our lunch in Dinuba's pleasant little park, by the newscaster sponsored by the Associated Farmers of California. This regular entertainment was brought to a close only after I took advantage of an equal time provision and answered his charges on radio time paid for by the Associated Farmers themselves. The columnist, Sokolsky, devoted a column to us at least once, the commentator Fulton Lewis, Jr., devoted a half-hour broadcast to us, while the urban presses of San Francisco and Los Angeles (hardly disinterested parties to the issue themselves) made repeated attacks and the conservative agriculture press carried on a constant barrage of complaint about what they called our "dirty rug questionnaire." This was the visible part of the pressure.

You do not have to take my word for this. Twenty years after the study was made, Richard S. Kirkendall, an agricultural historian, gave the incident a full, heavily footnoted treatment, which sets forth rather fully the efforts to discredit the work--though I must say I find the article over-researched and the problems involved under-comprehended. Kirkendall's article should be placed in the record, and I submit it for inclusion in the published hearings. It is entitled, "Social Science in The Central Valley of California; an Episode" and published in The California Historical Society Quarterly in 1964.

While Kirkendall has shown some of the lengths to which the opponents of the acreage limitation law went in their efforts to discredit the study, he does not tell the full story, despite his excessive use of references. He takes no note of the fact that I was not permitted to carry out the second phase of the study, though there must certainly have been something in the record on that too. He notes that I do not reference the Department of Agriculture, or any of my collaborators in the study, but he is unaware as to why. Here, perhaps, there was no written evidence. Actually, Kirkendall does not seem fully aware of the issues, for he writes as if he thinks of the Dinuba farms as marginal operations, which was by no means the case. But my most important criticism is that, by trying to remain above the issues and deal with the matter in an unpartisan way, and chiding me for my "eagerness" and "passion," to use his words, in presenting the case, he does not seem to appreciate the moral issues of censorship itself--and censorship it was. He quotes some of the BAE personnel in saying that I had disregarded contrary evidence, but he does not say what contrary evidence--for the fact of the matter is that none was ever brought forward. He also reiterates the argument that Arvin was a younger community and does not acknowledge that the report shows that this argument simply does not hold. There was passion in my response to the actions to suppress the Arvin-Dinuba findings, but this was not the passion to propagandise as he implies, but rather it was the passionate belief in the right to make the investigation and the right to report its results. It was a sentiment that led me to believe--perhaps idealistically--that if the BAE could not execute and publish such research, than its demise would be no tragedy. It was this sentiment which was largely responsible for my leaving governmental research for University teaching, at no small financial sacrifice.

I might add that, as a scholar from another discipline, I am bemused by the fact that Kirkendall was so involved with the tradition of his craft of historian, that he purposely limited himself to the written documentation, making no efforts to contact me or those colleagues who might have helped him to avoid his many misconceptions. In my mind I have written a response to him with some such title as, "Social Science in The Central Valley; Response from one Prematurely Interred in His Grave."

Though Kirkendall misinterprets me and misrepresents my actions, he does document the fact that the BAE vascilated and temporized in the handling of the affair. As you know, the agency suffered a massive curtailment of its activities at the hands of Congress and ultimately has eliminated its sociologically-oriented research programs entirely.

There was one effort made to answer the Arvin-Dinuba study. This is a report entitled, "The Arvin Area of Kern County; an Economic Survey of the Southeastern San Joaquin Valley in Relation to Land Use and the Size and Distribution of Income." The study by two economists, Cecil L. Dunn and Philip Neff, was according to the mimeographed copy in my files, "Prepared for the Board of Supervisors of Kern County and the Water Resources Committee of the Kern County Chamber of Commerce." The report fails to face any of the issues really raised by the Arvin-Dinuba study, but rather discusses in detail the nature of economic expenditures in Arvin as compared with other areas of Kern County.

From the standpoint of the Kern County Chamber of Commerce, apparently, the aspect of my research which really hurt was the evidence of curtailed retail trade and the consequent diminution of commerical opportunities--not the absence of social amenities or democratic institutions. Thus the Neff-Dunn study tried to show that trade was as great, but took place in Bakersfield and other urban centers. Thus efforts to suppress, to refute, to discredit and to defame the study (and occasionally myself and some of my associates) came to nought. Nobody pointed to inaccuracies in the data, to failures of analysis, or to the evidence that I was said to disregard. The study has entered into the documentation on rural life as well as with the discourse on farm policy. It was made the subject of a Public Affairs Pamphlet by Carey McWilliams and was extensively used in the posthumous book of the late Senator Estes Kefauver.

As a scholar and scientist, I take particular pride in the fact that it was not only favorably reviewed in the academic journals, but was extensively quoted in several of the leading textbooks that came out shortly afterwards, including: (1) Jessie Bernard, American Community Behavior. Dryden, New York, 1949, pp. 28-9 (2) Lowry Nelson, Rural Sociology, American Book Co., 1948, pp. 220-21, 274-276. Second edition, pp. 274-276. (3) Charles P. Loomis and J. Allan Beegle, Rural Social System, 1950, pp. 301-3.

Clearly the efforts to suppress, discredit, and answer the study were inspired and fostered by those who did not want these data known. I believe that similar efforts will be made in respect to any endeavor to replicate the study, in California or elsewhere. It is for this reason that it is of the greatest importance, not only that the study be updated, expanded, and brought to bear on areas such as your own State of Wisconsin and elsewhere in the farming heartland, but that it be done with the sponsorship and support of this vital Committee of the United States Senate.

I have stressed the fact that in the prosecution of the research we were guided by the best principles of scientific investigation. This meant, first, that we utilized what has subsequently come to be called "controlled comparison," bringing into field studies the closest practicable equivalent to laboratory procedures. It meant also that we were guided by principles of objectivity in all matters. Such objectivity was expressed in our careful sample selection, in our statistical procedures and perhaps most dramatically in the source of much of our data, which was independantly supplied by other investigators. There are two other elements in this research that must be given due emphasis.

The first of these is that the differences we found between the two communities relate back to basic theoretical considerations in the science of sociology; particularly as formulated in theories of urbanization. I do not want to carry you too deep into these theoretical waters, but let me point up the fact that urban social systems are characterized by heterogeneity rather than homogeneity, by differentials of status and power, by depersonalization of social interactions and by social isolation and alienation. In my Wasco study, as I have already pointed out, I showed that the industrialization of farming had the effect of urbanizing this rural community--hence its title, As You Sow. Of course industrialization is not simply all-or-none, and the Arvin-Dinuba comparison carried this analysis further, for it showed that as corporate operations increased, these urbanizing effects are exacerbated, while with lessened industrialization of production, such influences are ameliorated. There is nothing mysterious or esoteric about this relationship. The crucial factor is that with increased industrialization the population consists of dependent wage labor rather than economically independent entrepreneurs. These workers are not merely impoverished and dependent, they lack the essential power to formulate communities of the kind we know in our farming areas. Increase the corporate-operated farming and you increase the proportion of such laborers. I think that it is important to recognize that this research relates to basic sociological theory.

My second point has to do with the matter of values. There is great confusion about the relationship between science and values. It is generally recognized that the reality of values is not amenable to scientific proof. This is clearly the case, for values are sentiments we hold and share. It is also said that science is value-free, by which it is properly meant that the scientist must set aside his own values in examining the reality of cause and effect. But these two points have led some to assert that science cannot deal with values at all. This is manifestly false, for values regularly enter into scientific study. For exemple, the President's current all-out effort to analyze the causes of cancer operates on the assumption that cancer is bad and that therefore a cure for cancer is good. These are values that all of us accept. Again, when an economist analyses the profitability of an enterprise, he takes for granted that it is good to make a profit. Nothing the scientist does validates the assumption that cancer is bad and profits are good;

what the scientist does is to determine the causes and conditions under which good or evil will prevail.

The same approach characterizes the Arvin-Dinuba study. It did not prove that democratic egalitarian communities with high levels of social participation and stability of population are good. This is a value that we share; it is a matter of commitment or faith, if you wish. What my research did was to assume the values to be real and to demonstrate the conditions in which they flourish or languish. Most social scientists have shied away from anything involved with values. They apparently fear that to do otherwise would breach the canons of science, which must remain value-neutral. It is a confusion I deplore, and it is one that has led, I think, to the dullness and irrelevance of much of sociological research. They forget that most science takes basic values for granted. In the Arvin-Dinuba study we were examining the conditions that support or destroy these traditional values. It was then merely a matter of asking the right questions and following the basic tenets of scientific study to test this basic question against the realities as they existed.

This matter of asking the right questions makes me want to digress a moment and consider a related problem; namely, the moot question of the so-called economies of scale. One of the problems of the Central Valley Project Study concerned the economic effects of farm size and Dr. J. Karl Lee, then a colleague of mine, analyzed the problem in the Central Valley. That study is not so definitive as I would have liked, but it does tell us something about the economies of scale, and what it tells us is most important. The advantages by no means lie so clearly with the large enterprise. It is important to ask the right questions. Let me explain.

To economize means to maximize returns from a limited set of resources. Because the economist is habituated to think in terms of money, he translates this statement to mean the obtaining of the greatest dollar return for the dollar invested. But there are other things to economize than money; there are other investments. I do not mean simply that large-scale operations are often advantaged by such matters as rebates or discounts on purchases, or by tax advantages, or by the knowledge and ability to take advantage of certain governmental largesse--though these are certainly factors in the profitability of large farms. I mean that we must ask the question as to whether the returns of food and other farm products per unit of land is maximized in large farms or on family farms; whether the energy of input is maximized; whether the returns of agricultural products per input of labor is greater in one than the other. In other words, are we economizing use of land; are we economizing the use of labor; are we economizing the use of nonhuman energy input? It is in this context that I want to quote from the conclusions of the report by Dr. Lee:

> The large and medium-large farms have a slight advantage over the medium-size farms in output per unit of capital employed. But judging from past performance the medium-size summer-field-crop and dairy farms and the medium-large fruit farms have the advantage over other size groups studies in maximizing work opportunity, agricultural production, and the potential trade, or in maximizing income for the maximum number of people directly dependent upon agriculture for their livelihood.

The problem of the economies of scale is an important issue. I think you will find there are real and important questions with respect to them that deserve your attention. Certainly there are those who will say, should you follow a program of supporting a study on the social effects of corporation farming that "yes, all of this is true, but we must learn to live with the inevitable." I think that the large-scale farming is more profitable, in the purely dollars and cents meaning of that term, than is the family-sized farm, for I do not believe that the growth of agribusiness would have taken place if this were not the case. But I believe that this is a profitableness that derives from extraneous factors and is not a product of more efficient use of land, labor, or energy resources. And these, I believe you will agree, are the resources that increasingly we need to economise on.

Let me return to the social consequences of the incursion of agribusiness into the rural landscape by reiterating the hope that you will find the means to reexamine this problem along the lines of my earlier study. As your Committee is fully aware, the number of family-sized farms is rapidly dwindling throughout the United States and this change is taking place as a result of the incursion of large-scale corporations into the business of producing food and fiber. I am convinced that this development has been largely a product of policies of the United States Government--particularly policies with respect to agricultural support and with respect to farm labor. Even if it is a product of "natural" causes, this does not mean either that it is inevitable or that it is progressive. If, as my earlier investigation indicated for California, it is deleterious to community life, then certainly we should know this fact and undertake the formulation of policies which will stop the trend that has been taking place. It is important to determine whether, in fact, these deleterious effects are recurrent.

While I think that my study can serve as a model for such investigations, I am not suggesting a mere replication of it. There are certainly differences in a situation where a community developed from the outset in corporate farm operations (as was the case in Arvin) from one which was slowly transformed from small-farm productivity to agribusiness domination (as is the case in our Mid-West heartland). Such differences will have to be taken into account in undertaking a re-study.

I am sure there are other local factors that have to be taken into account, but those who have worked in the Middlewest and South are in a better position than I to determine this. There also have been improvements in the technology of research, and I am certain that the modern sociologist would be able to devise a better questionnaire than the one I formulated in 1944. But these are details; the basic idea of making a comparison of two towns within the context of similar economic and productive processes, differing only in the scale of operation is a sound method. The second-phase, which I so regrettably was unable to prosecute, is also one that should most emphatically be pursued.

I do not think the cost of such a study would be very great. In terms of that measure of research costs that I often use, the cost of a moon shot, it would be very small; I would say it would cost no more than a tenth and perhaps as little as a hundredth of one moon shot.

It will want the collaboration of economists and sociologists for some of the data must be obtained by specialists in each field. I will be happy to discuss further any details of the research program as we prosecuted it in California and am prepared to be of such help to the study group as amy be desired, within the limits imposed by the commitments and obligations that I must honor.

I am certain of one thing, that the prosecution of such research will be benefitted not only by fiscal support from this Committee, but by the moral and, should I say, political support this Committee can give, and I think that such research, carried out with the rigor of scientific investigation and the canons of scholarly work, will serve as a powerful tool to help us "to cultivate," if I may borrow your words, Senator Nelson, "not just food and fiber but a good culture and a happpy, healthy populace."

STATEMENT

by

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Before Subcommittee on Monopoly
Senate Small Business Committee

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My comments will be directed toward the problem of the relationship between large-scale and corporate firms in agriculture and the rural community including the persons employed in agriculture. These comments are based largely upon a study of corporations engaged in agriculture in Wisconsin in 1968.

In order to place my remarks in perspective, I should first like to discuss some of the considerations relating to the general problem of large-scale corporate farming and the rural community. By the rural community, I include the people who make their living working in agriculture as managers or as workers, those who buy from and sell to these persons and those who provide the services required of the people connected with agricultural production, processing and marketing. The rural community consists of all those people and firms connected with agricultural products before they reach the urban market.

It is important to maintain a level of living and quality of life for the people in rural areas consistent with that for the nation as a whole and consistent with the contribution made to the society by the people in rural [redacted] areas. It is because the rural areas of this nation have great difficulty in maintaining their standards of living and of services in the face of a declining farm population that we have reason for special concern. The corporate enterprise which enters a rural area replacing smaller owner-operators with hired managers and workers who buy and sell outside of the community adds to an already serious problem in many communities.

Some of these problems pertain to the temporary adjustment of the persons displaced as farms are sold. But, the more serious problem is in part an ecological one and that is how to provide adequate services to fewer people in rural areas without increasing greatly the time and cost of providing them. Improved roads and communications have increased the distance to which rural people can go for trading and for services. Consolidated schools and buses have put rural children into larger schools. But, when the number of people who buy and sell and who use local services decreases because some carry on their transactions outside the locality [redacted], it places a double burden upon those who remain. In effect, fewer people must maintain the services of the community with the cream of the business and support going elsewhere.

The influence of the absentee owner was pointed out by Professor Goldschmidt in his study of Arvin and Dinuba. About two-thirds of the land owners in Arvin, the large-scale [redacted] farm community, lived outside the community while this was true for less than one-third of the land owners in Dinuba, the family-farm community (Goldschmidt, 1946). This is one of the most distinctive differences between the two communities. This tends to create a kind of "vicious cycle." The more wealthy who live outside and who do their business outside a community, the poorer the services become; and, the poorer the services become, the fewer the people who want to live in the community if they can live or do their business elsewhere [redacted] So, the effect of the shift of resources outside a community tends to set forces in process which are accentuated over time unless there are counter forces operating.

This is part of a more general problem of how to prevent centers of population and wealth from exploiting the periphery (Weintraub, 1971). This tends to occur in the exchange between rural and urban areas but has been offset in part by various programs for the benefit of farm and rural people. But, as often happens, some programs designed to benefit the average farmer turns out to benefit those who already have the most land or other resources (Tweeten and Schreiner, 1970). More study is needed of the extent and nature of exchange between rural and urban areas and how inequities can be alleviated. This includes the transfer of wealth from rural to urban residents through inheritance, the exchange of goods and the migration of people between rural and urban areas and the education, skills and wealth which they take with them. Information is needed on the factors affecting the availability and the costs of services in rural areas for the purpose of developing policy which will prevent further inequities [redacted] affected by the exodus of people and the transfer of wealth and business dealings to larger centers.

I have deviated somewhat from the topic of the impact of large-scale corporate farming but it appears to me that we must place the problem in the perspective of what is happening to the relationship between the centers of power and wealth and the wider geographical areas upon which they depend. This is a problem within urban areas and within rural areas as well as between rural and urban areas.

Now, I should like to return to some of the findings of our study of corporate farming in Wisconsin from which will be elaborated in more detail by Professor Rodefeld. Our purpose was to study the characteristics of incorporated farms and of the resident owners, hired managers and hired workers on these farms. While we did not include in the study non-incorporated farms, we did make comparisons with data from a cross-section of farms in Wisconsin interviewed for other purposes. The findings from our study are contained in two reports--one on the characteristics of the farms by Professor Rodefeld (1971) and one on the characteristics of the persons managing and working on a sample of these farms by myself and Professor Rodefeld (Wilkening and Rodefeld, 1971).

In our study we identified 568 corporations which were engaged in the production of agricultural products in 1968; eliminating 39 sod farms, nurseries, Christmas tree farms, etc., left 529 which produced food or fibre. From this group we drew a sample of 110 farms on which we interviewed the principal manager in charge of the day-to-day operations and from one to three full-time workers making a total of 70 workers interviewed.

For purposes of reporting the results, we classified the farms into three groups: (1) those on which the owner or owners lived on the farm and managed the day-to-day operations and together with their families performed most of the work on the farm (owner-operator farms); (2) those on which the owner or owners lived on the farm and managed the day-to-day operations but hired most of the labor (owner-manager farms); and (3) those on which the owner did not live on the farm and hired managers in charge of the day-to-day operations (hired-manager farms). The first type, the family farm, is little different except larger in size than the average non-incorporated family farm. Of those interviewed, 34.6% were owner-operator farms, 40.9% owner-manager farms and 24.5% of the hired-manager type.

Because of the relatively few large-scale incorporated farms and their scattered distribution over the state, it was not possible to determine directly their impact upon rural communities. Such studies can be made more effectively in those regions of the country where a high proportion of the land and the farms are of that type. With some exceptions the dairy-farming areas of the Upper Midwest have not attracted many large-scale corporations to date. [redacted]. The dairy herd, requiring daily care and labor is still primarily a family operation. Only in Central Wisconsin are the combinations of land values, productivity, topography and other conditions such that a high proportion of the farms might become of the large-scale type.

The point is that we are dealing with a phenomena, the effects of which are difficult to observe and to measure. This is in contrast to certain areas of the West in which the patterns of large-scale corporate farms are more pervasive. It is for this reason that the focus of our study was upon the individuals and the families involved in corporate farms rather than upon the communities. However, the results from our study should have implications for communities. To the extent that income, levels of living, work patterns, satisfaction with work, buying and selling habits and social participation differ for the different types of farms and for the hired workers as opposed to the owners and managers inferences can be drawn for the communities in which the farms are located.

I will report on a few of the findings of our study pertaining to the characteristics of the individuals and families on the 110 farms included in the study. Remember that our study included only 25 farms with absentee owners and hired managers and workers. We were not able to obtain interviews with the managers and workers on at least two large-scale corporations involved in potato and vegetable crop production. I suspect that this refusal to cooperate is an indication of the desire to withhold information which they feel should not be made public despite our promise to maintain confidentiality of information on specific individuals and firms. Both corporations had headquarters outside the State of Wisconsin. I must add that both of these did complete a brief questionnaire sent to the principal officer of the corporation although some others did not.

According to our survey, the persons who managed and did most of the labor on their farms were not greatly different in their personal, social economic characteristics as compared with the average farmer in the State, although their farms and incomes were larger. However, those who owned and managed but did less than half the physical work on the farm were better educated, more of both husbands and wives had been reared in towns or urban centers and more lived in town or very close to town than of the owner-operators.

The family becomes less involved in farm work and decisions the larger the farm. Three times as many of the wives of the owner-operators helped with farm chores than of the wives of owner-managers and twice as many (half as compared with one-fourth) of the owner-operators assisted in keeping farm records. Wife's involvement in farm decisions and involvement of children in farm chores also decline with size of farm. The wives and children of hired managers tend to be involved in farm work and decisions less than on the owner-operated but more than on the owner-managed farms. For the most part it appears that the hired managers are persons who have lived in the communities a considerable length of time and their families were interested in and involved in the farm enterprise more than the families of the owner-managers but less than the families of owner-operators.

Satisfaction with work should be some indication of the opportunities and the rewards which the different types of farms provide for those who live and work on them. It should be kept in mind that we did not interview the owners who lived off the farm and did not manage the day-to-day operations.

Two measures of work satisfaction were employed. One pertained to the extrinsic aspects of the job--satisfaction with income, opportunity for making more income and perceived status of the job; while the other pertained to the intrinsic aspects of the job--how well they liked the work, felt their work was something they could do best and the extent to which they were their own boss. Surprisingly, there was little difference among the owner-operators, owner-managers and hired managers with respect to work satisfaction. Actually, owner-managers were slightly lower in extrinsic satisfaction than either of the other two groups despite the fact that they owned more land and had larger incomes.

The greatest difference in work satisfaction occurs between the owner and manager groups and the hired workers, although again the differences are not as great as expected. Furthermore, hired workers on farms managed by hired managers had slightly higher satisfaction as determined by both indexes, than the hired workers on farms managed by resident owners.

Responses to two additional questions were also revealing. Hired managers felt that they had "done the best with their life" with 44 percent responding "yes, entirely so;" owner-managers were next with 33 percent; and owner-operators and workers on hired-manager farms next with 29 percent and 28 percent, respectively, responding in this manner. Only 20 percent of the workers on owner-managed farms felt they had "done the best with their life" indicating that hired workers on farms managed by resident owners feel themselves at a greater disadvantage than other groups.

In response to how satisfied they were with their lives, about half of the owner-operators and hired managers were "very satisfied" (54 and 46 percent) while workers on the farms managed by resident owners were least satisfied with their lives (23 percent were "very satisfied"). Owner-managers and workers on farms managed by hired managers fall in between with 36 and 40 percent, respectively, being "very satisfied."

These [redacted] findings suggest that income and wealth do not necessarily bring satisfaction. It may be that those who have both power and wealth are in part victims of social and economic forces which have put them in the positions in which they find themselves. The larger farms have more indebtedness and are subject to as many stresses as the smaller farms. As some have indicated, once you get into the business of expanding your farm to take advantage of improved technology and to pay off the indebtedness on the farm, it is difficult to know when to stop. An increase in capitalization places a greater burden upon the manager to make an adequate return above labor costs. The family farmer may be limited in management, knowledge and skills without assistance from public agencies or advisory services.

It is my feeling, on the basis of talking with some farmers and hired managers and workers, that [redacted] some are more satisfied with less management responsibility and with the assurance of a steady wage income than as an owner-operator. This suggests that if hired managers and workers on absentee-owned farms, including those of large corporations, are paid adequate wages and have adequate housing and services provided by the communities in which they live, they may be more satisfied than the owner-operators who do not have the skills or other resources to manage successfully under present conditions.

As conditions affecting agriculture change, including changing consumer demands, fluctuating world markets, erosion and pollution problems and more serious insect and disease damage, the small farmer finds it more difficult to meet the challenge and still provide adequately for his family. But, neither is the shift to large-scale corporations an appropriate solution to these conditions. Too often the motives for nonfarm individuals and corporations to go into agriculture are not for the best interests of agriculture and for those depending upon it. They are concerned primarily with increasing their own power and profits and not with the maintenance of the natural and human resources. This occurs in a society and economy in which decisions tend to be based upon the advantages for the individual and for the firm rather than for the community and for the society.

My point is that we need to create policies, and laws to enforce them, which protect the interests of families and communities from the social and economic forces which tend to make human welfare secondary to economic power and profits. We need to assure the people who live on the land of adequate educational and other community services, and the future generations of adequate land and water resources.

How these goals can be attained for rural as well as for urban families will require extensive research. Goldschmidt's study in California has provided a landmark, with few studies in the intervening quarter century to add to it. Sociologists and economists have not faced the complex theoretical, methodological and value issues involved in doing this kind of study. But, we now have the technology and some theoretical and methodological tools for approaching these problems. Recent efforts of a North Central Regional task force committee under the Chairmanship of Professor Willard F. Mueller of the University of Wisconsin Agricultural Economics Department is proposing a study of the organization and control of U.S. food production and distribution system. The creation of the Center for Rural Development at Iowa State University should provide another facility for engaging in this type of research. The problem needs to be approached on a nationwide basis which in the past has been restricted partly by the structure of the control of research through the Separate Land Grant Colleges.

Research relating to the consequences of large-scale corporate firms in agriculture is needed at three different levels: at the level of the farm to include the individuals and families involved in it, at the community and regional level, and at the societal level.

Further research is needed on the human relationships within farms of different sizes and types to determine how the needs and interests of individuals in different roles are affected. This should include studies of owner-manager and manager-worker relationships and the relationship among workers of different types. Efforts along this line include the study of human relations on Michigan fruit and vegetable farms (Voland, 1968), and the study of economic and social aspects of labor in the citrus, lettuce and cotton industry in Arizona (Padfield and Martin, 1965). Special attention needs to be given the migrant workers and how they are affected by the practices of agricultural employers. Studies are needed of how work patterns, relationships with management and compensation procedures affect worker's efficiency, stability and satisfaction. For example, the provision of shares in the corporation to workers as provided by one

Wisconsin agribusiness firm is one type of worker compensation. The role of labor organizations upon production and efficiency as well as upon the security and status of the worker is another area about which there is little current knowledge, and it is likely to be an area of increasing future concern on the part of both producers and workers.

Further research on the effect of the sizes and types of farm organization upon the status, security and satisfaction of owners and managers and their families is needed. There is some evidence in our Wisconsin study that hired managers on incorporated farms are about as satisfied as the resident owners with their financial returns and their work roles. Furthermore, almost as many of the owner-managers as of the hired workers on these farms were least satisfied with the financial aspect of their job. We need to know the extent to which the satisfaction of persons at different levels in the agricultural enterprise is affected by the nature of the internal organization of the enterprise as well as by the size and external aspects of the firm.

Studies at the community level are needed to consider the affect of large-scale agriculture upon the services provided for families at all levels. This may need to include larger areas than the small rural community as studied by Professor Goldschmidt. Rural people today travel much further for all services. It is important to know what is happening to the businesses and institutions in the total area affected by changes in agriculture. There are two aspects of this problem. First, what is happening to the businesses and institutions themselves and secondly, what is happening to the level of services available to different social and economic classes. That there is a decline in the businesses and services in the small centers is almost inevitable. While [redacted] consolidation [redacted] into larger units may be more efficient from the standpoint of the instutions, the quality of the service may decline (see Day, 1968). Nevertheless, attention needs to be given to the adjustment and relocation of individuals and families affected by the consolidation of services and institutions.

An increase in the social and economic differentiation of people connected with agriculture and the shift to businesses and institutions in larger centers on the part of the higher income group is likely to have a double barrelled effect upon the level of services for the lower income groups. It reduces the number of people supporting the local community and it increases the distinctions among those remaining. To what extent the shift of business and other contacts to larger centers on the part of the higher income group reduces the services for the lower income groups should be determined. Current studies such as those by Professor Glenn Fuguitt (1971) on the growth and decline of population centers in non-metropolitan areas needs to be supplemented with some systematic study of specific regions and communities in relationship to the structure of agricultural enterprises in them.

The studies of regions might be combined with the study of specific communities within them to determine how and why changes in agriculture are affecting changes in the institutions and services. At this point further work is needed on the conceptualization as well as upon the measurement of the relevant dimensions of the communities and regions.

While the data on buying and selling habits and on social participation is essential, this does not tell us much about the stability and adaptability of the institutions and of the total community over a period of time. [redacted] Unless communities isolate themselves from the larger society they need to provide for innovations and changes in the structure and types of activities.

Changes do not always mean growth. The American obsession with growth must be attenuated. The communities of the future which are the most viable and provide the highest quality of services may not be those which are growing most rapidly. It may be those which are able to adapt their resources to the basic needs of a certain number of people and develop linkage with other communities to provide other services. The question is not whether each small community is going to survive, but whether the society and the people in it will survive in a way that will provide the optimum of goods and services to all groups within that society.

Beyond the study of the effect of large corporate systems upon the people in agriculture and in rural communities, current information is needed on such enterprises. While the States authorize the forming of corporations, there is usually little information required by the States on these corporations. Since the size and the nature of the corporations involved in agricultural production has more immediate affect upon other people than is true for the average industrial corporation, it is especially in the public interest to have information about farm corporations made available to the public. This should include current information on land holdings and type of business or businesses of all corporations in the State by county or counties in which the land is located.

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Needed Research Into the Effects of Large Scale Farm and Business Firms on Rural America

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Senate Small Business
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Large firms and the centralization of economic power have long been a source of concern in the American economy, but only recently has this been the case in agriculture. Apart from some flurries of excitement in the land-boom and bonanza-farm days of early settlement, there were no real threats from monopoly power in agriculture until after the second World War. The Trust-Busting era largely by-passed American agriculture.

For the past half-century, structural policies for agriculture have been dominated by technical considerations. The major advice to farmers has been to expand the size of their farms. The criterion of success has been the achievement of lowest unit cost in a micro-economic sense. In measuring this achievement, many economic and social costs that are external to the farm firm have been left out of account.

With the development of truly large-scale firms in agriculture and related businesses, it is increasingly clear that questions of farm size and structure must be answered in terms of their effect on the entire economic and social system, and particularly on the rural community. Calculations of costs and returns within the framework of the agri-business sector will not provide an adequate basis for comparison of the merits or deficiencies of firms of different size or organization.

This statement attempts to set forth some of the key questions raised by the appearance of firms large enough to pose a threat of monopoly power in rural America. Answers to these questions will require data that are often deficient, or lacking. Suggestions will be made as to research that is needed to provide these data, and to equip private citizens and their political leaders with the information needed for wise policy formulation.

An economic rationale for the large firm in agriculture lies in the fact that it can internalize benefits from large scale that fall outside the control of small firms. The use of large-scale equipment is the example most frequently cited. Other examples include bulk purchasing of supplies and equipment at discounts. These result from the fact that the large firm has greater bargaining power and can bypass conventional units in the retail distribution chain. Incorporation, better accounting, and superior business management practices can improve access to capital markets. Large-volume production permits exercise of market power in the sale of products. The ability of large firms to internalize these scale benefits is the principal reason why farm management advice throughout the past 50 years has focused on increasing farm size as a solution to problems of low rates of profit and inadequate family income.

Only in the past decade has serious attention been give to the fact that the large agricultural firm is also able to achieve benefits by externalizing certain costs. The disadvantages of large scale operation fall largely outside the decision-making framework of the large farm firm. Problems of waste disposal, pollution control, added burdens on public services, deterioration of rural social structures, impairment of the tax base, and the political consequences of a concentration of economic power have typically not been considered as costs of large scale, by the firm. They are unquestionably costs to the larger community.

In theory, large-scale operation should enable the firm to bring a wide range of both benefits and costs within its internal decision-making framework. In practice, the economic and political power that accompanies large size provides a constant temptation to the large firm to take the benefits and pass on the costs.

The rural community receives the immediate impact of this ability of large farm firms to practice selective internalization of benefits and externalization of costs. One of the most pervasive consequences is that the occupational composition of the population changes. Instead of a large number of small entrepreneurs, combining the functions of manager and laborer, the occupational structure includes a small number of managers and a large number of workers. In rural communities dominated by very large firms, the settlement and housing patterns reflect this increasingly transient nature of the labor force. The symbol of the large corporate farm becomes the trailer house. Community institutions suffer from lack of leadership, and from the lack of a sense of commitment on the part of the labor force to long-run community welfare. Those institutions that survive take on a dependent character, reflecting the paternalistic role of the dominant firms. Income levels may stabilize, but at the expense of a decline in local capacity for risk-taking, decision-making, and investment of family labor in farms and local businesses.

In many cases the rural community declines. Per capita costs of public services go up or the quality of service deteriorates, or both, and the youth of the community are forced to go elsewhere if they are to obtain adequate training, and employment. Poor schools, poor roads, deficient housing and limited cultural opportunities tend to be associated with rural communities dominated by large firms. Examples can be found in California, Colorado, Florida, Texas, the Mississippi Delta States, and elsewhere.

A size of community that can support service staffs for farm supplies and equipment has long been recognized as important to a healthy rural structure. But staffs needed to service the household have expanded greatly in recent years. A shortage in these skills may be more critical than a shortage in fertilizer or feed supply, or in farm equipment repair and maintenance capacities, in determining the future viability of rural communities. Electricians, plumbers, TV repair shops, service centers for kitchen equipment-these are among the key service functions of communities that aspire to a service-center role in the future.

It is noteworthy that a deficiency in the supply of skilled tradesmen of this type is often one of the most pronounced features of "company towns" or communities dominated by a few large firms. This difference is clearly evident in Arvin and Dinuba, the two California communities studied by Walter Goldschmidt in the mid-1940's. Arvin, the large-farm community, is short of skilled tradesmen of all kinds.

In the early 1960's, farm laborers and foremen were 36 per cent of the labor force in Arvin, 13 per cent in Dinuba. Professional and related skilled trade and service staffs were 6 per cent of the labor force in Arvin, 15 per cent in Dinuba. In Arvin in 1960, 19 per cent of the population over 25 years had completed high school. In Dinuba, the small-farm community, the figure was 38 per cent.[1]

These considerations suggest that a major area in need of further research involves the effect of large-scale firms on the education, composition, training, and balance of the labor force in rural communities. The quality of the people is the ultimate test of a community. This should be the central focus of any study that attempts to assess the impact of large scale firms in rural areas.

The effect of firm size on the environment is closely related to effects on people. What has appeared to be an example of economies of scale in agri-business production often turns out on close examination to be an example of successful transfer of pollution control or waste disposal costs and consequences to the neighboring community. Examples include packing plant and feedlot wastes in livestock feeding areas, water pollution through heavy use of agricultural chemicals in irrigated areas, watershed and water table deterioration where large-scale drainage has been attempted, and the disturbance of ecological balance associated with heavy use of insecticide and related agricultural chemicals.

By law, the National Environmental Policy Act now requires that a study of the environmental impact of any major federal investment or development project shall accompany the project proposal. Admirable as it is, this requirement fails to cover the many private developmental decisions that together may have a greater effect on the environment than do public investments. This applies with particular force to the development of large scale agricultural firms. In an urban and industrial setting, the agencies of government are sometimes strong enough to enforce pollution control and waste disposal policies on large private firms. This is rarely the case in rural areas. Government is weak, all to often dominated by the large firms, and unable to devise, enact, r enforce environmental protection measures.

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[1] Bruce L. LaRose, "Arvin and Dinuba Revisited: A New Look at Community Structure and the Effects of Scale of Farm Operations", unpublished manuscript, Department of Agricultural and Applied Economics, University of Minnesota, March, 1970, and U. S. Census of Population, Characteristics of the Population, Part II, California, 1960.

A substantial body of professional literature is now developing with regard to agriculture's responsibility for environmental problems. With few exceptions, this literature does not identify the differential impairment of the environment by size of firms. If the major polluters are large scale firms, the technical studies rarely say so.

What is now needed is a research effort that will alert communities to the potential environmental costs of large scale agri-business firms. It is clear that not all of the environmental deterioration traceable to agriculture is caused by large firms. But it is also clear that much of it is. Rural communities are beginning to be aware of the need for zoning to protect against residential misuses of land. It is ironic that some rural communities now regulate residential lot size and household septic tank installations but remain unable to control the pollution caused by large agricultural firms.

The ultimate ability of large-scale firms to externalize costs is measured by their capacity to pass on cost-of-production increases to consumers. It is this possibility that poses the most serious long-run threat from large-scale firms in agribusiness. As long as there are alternative sources of supply from a large number of relatively small-scale farms, the pressure of competition compels large firms to pass on cost reductions to the consumer. Many would argue that the consumer has been the principal beneficiary of the remarkable increases in agricultural production efficiency over the past half-century. The family type farmer has been notoriously unable to retain many of these benefits and his relative income position shows it.

In this structure of large and small farms, the large farm appears to be efficient, cost-conscious, and the source of much of our efficiency in agricultural production. But this could well be a transitional phase. If there are only large farms, the potentials for collusion, market sharing, restrictions on entry of new firms, and outright supply control are enormously increased.

It is a part of our mythology of large firms that they are efficient. But the key question is: efficient at what? For very large farms, the answ is clear: At the exercise of market power. We have never witnessed the exercise of market power by truly dominant firms in agriculture.

We have only industrial analogies to guide us. If the large firm has its power base in the ownership or control of land, there are legitimate reasons to fear that industrial analogies may be misleading.

There are few large-scale business firms, apart from mining and forest products, that can look to land value appreciation for any substantial part of their long-run prospects for firm growth. The situation in agriculture will be quite different. There is well documented evidence that much of the non-farm capital that has entered agriculture in the past two decades has done so in anticipation of capital gains in land. A desire for food is not the only source of the demand for land that has increased its price. Rural land is increasingly demanded by a variety of non-farm users, for residential, recreational, watershed protection, and many other uses.

The effects of local monopolies of rural lands in the hands of a few large agribusiness firms will not be confined to the consumer's food budget. It is in his role as user of rural land for non-food purposes that the consumer may feel the impact of rural land ownership concentration most keenly. Food can be imported. The consumer can go abroad in search of cheaper recreation or residential amenities, but he cannot import the sites. The effects of concentration in agriculture are quite likely to drive up the relative price of food, in the long run. They are certain to drive up the costs of non-food producing uses of rural land. It is this consequence of a trend toward large scale firms in agriculture that should be of greatest concern in an affluent society.

The research that is called for is an inventory of who owns rural America, and not simply its agricultural land. Recent history is replete with examples of a belated realization by states once considered rural-Colorado and Montana are prominent examples-that their most valuable recreational resources have passed silently and swiftly into a few hands. The need to alert rural communities to the problems of land monopoly sounds like an echo from a 19th century cry. It is all too real and current.

Rural communities, especially in Appalachia, New England, the Ozarks, and the Mountain States, need help in the development of land policies. The local political structure frequently makes it peculiarly difficult to persuade them that the regulation of land transfers is in their interest. And in the states most affected, support for the research that is needed is often weak even at the state level. A relatively few local communities currently have control, such as it is, over the nation's recreational lands. A national effort is needed to help them to accept and discharge this responsibility.

A part of the reason why big firms are attracted to agriculture can be traced to the heavy capital requirements of modern agricultural technology. Special buildings for poultry, complex feed formulas that require expert mixing, special seeds, highly tailored fertilizers, high-capacity field equipment, $12,000 trucks, $20,000 tractors, and $30,000 combines all put a heavy strain on the ability of a farm family to finance a large and well organized farm. Much of the vertical integration that has occurred in American agriculture is a result of the supply of credit to farmers by firms supplying production requirements or processing farm products.

But this is only a part of the explanation. In many types of farming there are added attractions to big firms that grow out of our tax structure and our system of government price supports for agriculture. The price support program reflects conscious policy. The tax advantages for big firms are an accident, and were almost certainly unintended.

Because we have a graduated and progressive income tax, and because we tax capital gains at a low rate which becomes a flat rate for incomes above about $52,000 (married couple, filing a joint return), we have built in a strong incentive to convert ordinary income into capital gains. This option is of little or no value to the year-to-year operation of a family sized farm. It is of great value to a high-income taxpayer who can use non-farm income to invest in farm capital which can benefit from capital gains tax treatment. The most common examples involve beef breeding herds, tree and vine crops, large dairy enterprises, and horses.

Big firms have been created to channel capital into these enterprises in order to take advantage of capital gains tax treatment. Movie stars and oil millionaires have become ranchers. Citrus, tree-nut, and vinyard properties have inflated in value as a result of competitive bidding from wealthy investors. The economies of California, Texas, Florida, and the Mountain States, to cite only the best publicized examples, have been distorted by an inflow of capital that is basically seeking a tax shelter.

This tax shelter function of agriculture is inextricably related to its land base. A careful review of prospectuses issued by firms seeking investors in ranching or beef feeding and slaughter enterprises makes it clear that the major attraction is prospective land value appreciation. The firms that have gone spectacularly bankrupt in recent years, headed by the Black Watch Angus enterprise, have been those in which the investors had only cattle from which to reap capital gains. Someone else held the land. The tax shelters that function best are ones in which the investors have secured their investment with a stake in the land as well as in the animals, orchards, or groves. The lesson is clear: If you want a safe tax shelter in agriculture, make sure your investment includes rights in real estate.

An operational rule of thumb in cattle ranching at present prices is that a ranch buyer can afford to pay from $600 to $800 per cow-calf unit for ranch land. That is, he can afford to pay up to about $800 for as many acres as it takes to provide a year's feed supply for a cow and calf. A price of $800 can be justified only by a highly efficient ranch operation, and an optimistic long run appraisal of beef cattle prices. In mountain ranching areas of Colorado, Wyoming, and Montana today ranch land is selling at twice the prices any operating rancher can afford to pay. In 1970-71, prices up to $1500 per cow-calf unit, or more, were being paid without hesitation.

How can buyers afford these prices? There are two answers, apart from the romance of ranching. Some of the ranch buyers expect to sell off or lease a part of the ranch land for summer residences or "second homes." They are thus buying into a dual enterprise: a ranch and a real estate development. But the major explanation is that they are using the tax advantages that come from the use of cash-basis accounting (which the Internal Revenue Service permits in farming but not in other businesses) and capital gains tax rates to bid up the price of land. The richer the investor, the greater this tax advantage. The result has been described as a negative income tax for the rich.[2]

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[2] Charles Davenport, "A Bountiful Tax Harvest", Texas Law Review, December 1969, p. 9.

These tax advantages are dramatic in ranching, tree-nut groves, vineyards, and specialized livestock breeding enterprises. They are less attractive but still real in ordinary farm land. Some of the fun was taken out of the tax shelter game by the federal Tax Reform Act of 1969. For long-term capital gains in excess of $50,000 the tax rates for individuals were raised from a maximum of 25 per cent to 35 per cent, effective with the tax year 1972. For corporations, the capital gains tax rate was raised to 30 per cent, effective in 1971. These still remain highly attractive rates to investors in the top income tax brackets. They can afford to bid this advantage into the price they offer for land.

This is part of the explanation for the rural taxpayer revolts against the property tax that have erupted in recent years. Land prices have been bid up by non-farm buyers to levels that have no relation to farm earings for ordinary family farmers. The higher prices have generated unrealistically high taxes. The demand for second home sites, outdoor recreation opportunities, and decentralization of urban areas has come on top of these tax advantages for upper income investors. The result is a structure of rural land values that is increasingly unreal by any test based on net farm income. Farmers who have succeeded in increasing their farm size to a scale that will enable them to achieve almost all of the economies of size in production now find that their capital structure is so large that their sons cannot finance a takeover of the family farm.

Research needed in this area involve a search for ways to reduce land values to levels that can be supported by farm income. One way is to reduce the attractiveness of land to non-farm investors. Tax policy can play a major role in this attempt. In recreational areas and in areas that feel the impact of urbanization, it is difficult to avoid the conclusion that some controls will ultimately be needed on land transfers. Zoning has been tried, and in general has failed to preserve agricultural lands for agriculture. We accept restrictive zoning and building permits in urban areas as a necessary restriction on individual freedom of choice. We do not yet accept exclusive agricultural zoning backed up with farming permits as tolerable, but this may well be the price that must be paid to maintain a structure of competitive farm firms. Without some controls of this nature, the trend, in recent years points to a clear alternative: A structure of rural land ownership dominated by large firms and corporate holdings.

Apart from specialized firms in poultry, cattle feeding, and some fruit and vegetable crops, there is almost no evidence that very large firms are more efficient when all costs are taken into account.[3] If they prevail, it will be the result of defective institutional structures, above all the tax system, of farm programs that favor large farms, and of an insistance on freedom of choice in land transfers that is both blind and self-defeating. Rural communities have watched land values go up and farm income go down. In the final analysis, farmers will have to decide whether they want to be farmers or land speculators. If farmers, then public policy can aid them. If land speculators, their days as family-type farmers are numbered.

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[3] Repeated studies by the U.S. Department of Agriculture and State Experiment Stations have shown that well-organized one-and two-man farms can achieve almost all the economies of size now available in agricultural production. See the summary of these studies by W. B. Sundquist, "Economics of Scale and Some Impacts of Agricultural Policy on Farm Size", paper presented at a Conference on U. S. Agricultural Policy, Center of Human Resources, University of Texas, April 30, 1971

Arvin And Dinuba Revisited: A New Look At Community Structure And The Effects Of Scale Of Farm Operations*

Bruce L. LaRose**

Introduction

A matter of some concern in agriculture today is the increasing importance of corporation farming and the possible ill effects upon the structure of American agriculture. This paper is not specifically concerned with corporation farms in totality, but rather, with large-scale farm operations, and the possible effects that can be demonstrated by viewing the concurrent rural community structure. Three reasons have been put forward as to why there should be concern about "super-farms" in American agriculture:

a) A fear that many of the incentives leading to large corporate farms do not result from greater efficiency or superior management, but are the result of institutional defects, particularly in the tax system, in the marketing structure, and in agricultural extension programs.

b) A fear that the trend toward corporation farming is an additional example of a trend toward the centralization of economic power and decision-making in a few hands and places, with a resultant loss of flexibility and diversity in our national economic life.

c) A fear that a rural structure dominated by a small number of 'company farms' will yield a deadening conformity and a restricted environment in which to develop the full potential of the quality of rural life.[1]

The first two reasons have been analyzed by agricultural economists, and although there are some divergent viewpoints, the evidence is beginning to accumulate against the corporation (large-scale) farm on the basis of weaknesses in the tax structure and a definite trend towards centralization of economic power.[2] The third reason, the possible deterioration of rural community life, has not been the subject of extensive examination recently, nor are the experts completely positive of the implications:

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[1] Raup, Philip M. "Some Issues Raised by the Expansion of Corporation Farming," Testimony by Philip M. Raup before the Monopoly Subcommitee Hearings on Corporation Farming, United States Senate Select Committee on Small Business, Eau Claire, Wisconsin, July 22, 1968. pp. 7-8.

*Paper prepared for Seminar in Land Tenure, Agr. Econ. 8-360, Dept. of Agricultural and Applied Economics, University of Minnesota, Fall quarter 1970.

**Graduate student, Department of Geography, University of Minnesota.

> ...it is not clear that a rural structure dominated by corporation farms must inevitably lead to a deterioration in the social quality of the rural environment.[3]

This paper is an attempt to examine certain facets of rural community structure within two contrasting communities to see what the effects have been over time.

Arvin and Dinuba--two communities in the Central Valley of California

Arvin, a large-farm community, and Dinuba, a small-farm community, were the subjects of a detailed analysis and comparison in the mid-1940's.[4] The summary of findings for this previous study will provide the basis for a new examination of these two communities two decades later. The more significant findings of this earlier study were as follows:

a) The small-farm community supported a greater number of separate business establishments.
b) The volume of retail trade was greater in the small-farm community than in the large-farm community.
c) Expenditures for household supplies and building equipment were greater in the small-farm community.
d) People in the small-farm community had a better standard of living than those in the large-farm community.

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[2] As an example, the current high prices for eggs seems to be the result of a concentration of the poultry industry in a few hands.

[3] Raup, op. cit., p. 15.

[4] Goldschmidt, Walter R. Smrll Business and the Community: A Study in Central Valley of California on Effects of Scale of Farm Operations. Report of the Special Committee to Study Problems of American Small Business, United States Senate, December 23, 1946, U.S. Government Printing Office, Washington, D.C., 1946, pp. 6-7.

e) The ratio of independently employed businessmen was greater in the small-farm community.

f) Agricultural wage laborers were a greater proportion of the labor force in Arvin.

g) The physical facilities for community living were more extensive in the small-farm community.

h) Educational facilities were very limited in Arvin.

i) In other social and cultural amenities such as recreation centers and organizations, churches, and newspapers, the small-farm community had the edge.[5]

The foregoing points constitute the basic findings of this initial study, and they will provide the framework for a more up-to-date analysis of these two communities.

Assumptions and Limitations of the Study

The basic assumption of this study is that the two communities have remained essentially the same in character: that is, that Arvin is a community with relatively large-scale farming enterprises and Dinuba remains essentially a small-scale farming community.[6] An examination of topographic maps which included these communities indicated that the essential constrasts in scale of operations between them remained.[7]

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[5] Ibid.

[6] Detailed statistics which would enable the researcher to determine the exact nature of present land tenure arrangements were available only on the county level. See U.S. Department of Commerce, U.S. Census of Agriculture, Final Report, Vol. II, part 48--Counties, California, 1959.

[7] The U.S. Geological Survey topographic sheets analyzed were: (1) Weed Patch Quadrangle; (2) Reedley Quadrangle; (3) Orange Cove South Quadrangle; and (4) Arvin Quadrangle.

The most serious limitation is obvious, that is, the lack of field work to corroborate information gleaned from other sources, particularly the topograhic sheets. Two types of source materials, telephone books and directories, would have provided a great deal of recent information, but were not systematically available for the two communities.[8]

Despite the limitations of this study, it has been possible to compare the two communities and inferences will be made not only about the present community structure but also concerning the possible effects of farm structure over the twenty-five year span between the two studies.

Educational, Social and Cultural Facilities

A comparison of existing social, cultural and educational facilities was made and the pertinent data are presented in Table I.

TABLE I

Educational, Social and Cultural Facilities in Arvin and Dinuba[a]

	Arvin	Dinuba
Grammar schools	3	4
High schools	1	1
Hospitals	0	1
Churches	11	18
Churches per 1000 population	2.07	2.95
Radio stations	0	1
Newspapers	1	2
Population (1940)	4042	3790
" (1960)	5310	6103
" (1970)	5090	7917

[a] U.S. Census of Population, 1960 and 1970, and U.S. Geological Survey, Topographic Sheets, 1966; for newspaper data, Ayer's *Directory of Newspapers and Periodicals.*

The weaknesses of relating sheer numbers, or quantity, to quality is realized but, even based on the simple data presented here, it would appear that Dinuba has superior educational, social and cultural facilities. The lack of a hospital, (as of 1960), and radio station in Arvin represent significant deficiencies in the community structure. There is also a significant contrast between the newspapers published in the two communities (see Table II).

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[8] There was an exception to this. The telephone book for Arvin was available in Minneapolis and some cross-checks were possible for the data on Arvin.

TABLE II

Newspaper Data For Arvin And Dinuba

Title	Publication day	Circulation
(Arvin) Tiller	Wednesday	2351 (1995 of these distributed free)
(Dinuba) Alta Advocate	Thursday	824
(Dinuba) Sentinel	Tuesday & Thursday	2071

Source: Ayer's Directory of Newspapers and Periodicals

It appears that the Tiller is a company newspaper, based on the large free distribution, so that Arvin does not have an independent medium of communication. Dinuba, on the other hand, has two independent newspapers, one of which publishes twice-weekly. A radio station, KRDU, provides another local medium of communication for the small-farm community.

Educational facilities appear to be relatively equal, but if one looks at some educational statistics, the impact of these educational systems has not been equal (see Table III). Perhaps there have also been differences in attitudes concerning the value of an education.

TABLE III

Educational Levels Completed By Population Over 25 Years of Age, 1960

	Arvin	Dinuba
Completion of 8 grades	56.8%	69.9%
Completion of high school	18.9%	38.2%
Completion of college	2.9%	6.8%
Median school years completed	8.3	9.8

Source: U.S. Census, Census of Population, Characteristics Of The Population, Part II, 1960, California

The investment in education by Dinuba in the past has apparently resulted in a better payoff for the community than has the previous educational investment of Arvin. At the time of the Goldschmidt study Arvin had only one elementary school and had no high school, whereas Dinuba had a high school and three elementary schools. Based on the median of school years completed by those over twenty-five years of age, this previous lack of educational facilities in Arvin has had serious repercussions for that rural community today.

Roads as a Measure of Investment in Rural Infrastructure

Data on public service delivery systems were limited for the two communities. It was thought that the investment in roads might provide an indication of the extent of investment by the individual communities in a rural infrastructure, aside from those aspects of infrastructure already alluded to such as parks and education. Roads were placed into three classifications for both Arvin and Dinuba:

1) Medium duty roads (often involving a county road or state highway).
2) Light duty roads (paved roads not usually under county or state jurisdiction).
3) Dirt roads

TABLE IV

Data On Roads In The Arvin And Dinuba Areas In The Early 1960's (Excluding Urban Built-up Areas)

	Arvin	Dinuba
All three types of roads, per square mile	2.77 miles	3.35 miles
Paved roads per square mile	1.56 miles	3.08 miles
Dirt roads as % of total road net	44.0%	6.0%
Dirt roads as % of total road net minus medium duty roads	56.0%	8.3%

Source: USGS Topographic Sheets, 1966

It is clear that Arvin has a less dense road network. More significantly, a greater portion of this network consists of dirt roads. This might indicate an unwillingness by the community to invest in this sector of the rural infrastructure. The extremely high percent of dirt roads as a per cent of the total road network minus medium duty roads eliminates the county as a factor in the calculations. Within the built-up area of Dinuba there are two miles of non-county, medium duty roads. This would indicate a further desire to invest in a strong rural infrastructure by the small-farm community.

Demographic and Economic Characteristics

An analysis of census material for certain socio-economic data provides some illuminating contrasts between the two communities (see Table V).

TABLE V

Selected Socio-Economic Characteristics

	Arvin	Dinuba
Income statistics		
a) family income less than $3000	37.1%	24.8%
b) family income greater than $5999	24.4%	39.0%
c) median family income	$3,799	$5,210
Selected employment characteristics		
a) farm laborers & foremen---employment by occupation (as % of total employment)	36.4%	12.6%
b) professional & related services--employment by industry (as % of total employment	6.4%	15.1%
Selected retail trade statistics		
a) establishments (total number)	66	120
b) total sales, all establishments, in $1000	$7,970	$12,836
c) $ sales per capita	$1,500	$ 2,103
d) $ sales per family	$6,173	$ 8,144

Sources: US Census of Population, Characteristics of the Population Part II, California, 1960; U.S. Census of Business, Retail Trade, Area Statistics, Part II, 1963.

The data presented here indicate that the differences found in the two communities in 1946 still exist. The large percentage of agricultural laborers and foremen found in Arvin indicates that the essential characteristics of large-scale farming still predominate in Arvin. A higher standard of living is found in Dinuba, to the extent that this variable can be measured by family income and retail trade statistics.

Summary

It appears that the contrasts that existed between Arvin and Dinuba in the 1940's continued to exist in the 1960's. In only one aspect, education, has Arvin improved its relative position. This could be a reflection of the role of Kern County as the basic administrative unit for Arvin. A willingness to engage in civic affairs or invest in an infrastructure is reflected by the contrast in governmental structure of the two communities. Arvin remained as an unincorporated community in the 1960's while Dinuba has been incorporated since 1906.

The cursory nature of this analysis is recognized. Granting the data limitations, this study tends to confirm the finding that there continues to be a significant effect on community structure associated with differences in the scale of farming operations in the two communities. More significantly, this study indicates that the effects of large-scale farming on rural community structures are long lasting.

Comments by WALTER GOLDSCHMIDT ON:
ARVIN-DINUBA REVISITED By BRUCE L. LAROSE

The examination of information on the current conditions of Arvin and Dinuba twenty-five years after the original study of these two towns, is of more than passing interest. At the time the original study was prepared, one of the constantly reiterated criticism was that Arvin was a new town and had not had time to develop the amenities that Dinuba had. Though the report itself amassed considerable evidence to demonstrate that this could not in fact have been the salient factor in accounting for the differences between the two towns, the argument presisted in the public press. Mr. LaRose's analysis demonstrates that time was, in fact, not the essential factor, since more time has elapsed since 1944 than the towns are separated in age.

At the time of the original study, Arvin and Dinuba had, according to economic data made available by collaborators in the original study, an almost identical agricultural economic base. The failure is the more important because Arvin has had the advantage of considerable growth in its economic base. As a direct result of the Central Valley Project itself, the desert lands to the Southeast of Arvin could be opened to irrigated agricultural exploitation. I do not have information on the amount of land that has been developed in the area since 1944, but judge it to have been on the order of a doubling of acreage under intensive crop production.

Thus even though the amenities discussed by Mr. LaRose remain inadequate by standards established in Dinuba, the town of Arvin has at the present time a much larger economic base and presumably much higher value of gross agricultural production.

Such expansion was simply not available to the farmers of Dinuba, which was hemmed in on all sides by other communities. However Dinuba has not been entirely stable. There have developed there, partly because the community was a pleasant one to live in, a saw mill and a number of minor industrial enterprises. These developments, together with possibility that Dinuba became to some extent a dormitory community for people working in the city of Fresno enabled it to continue its population growth.

It is reasonable to assume that had the acreage limitation law been applied to the lands developed around Arvin, and farm operators settled on the land, not only would the community of Arvin been more closely resembled Dinuba, but one or more additional communities of like character would have come into existence.

REPUBLICAN PARTY PLATFORM, 1888:

> "We oppose all combinations of corporate capital in trusts or otherwise, to control arbitrarily the conditions of trade among our citizens."

DEMOCRATIC PARTY PLATFORM, 1888:

> "The interest of the people is betrayed when trusts and combinations are permitted to exist, depriving the citizens of natural competition."

TESTIMONY

Ed Wimmer, Vice President
Public Relations Director
The National Federation of Independent Business, Inc.

BEFORE

SUBCOMMITTEE ON MONOPOLY
Senate Small Business Committee

United States Senate
Washington, D. C.
March 2, 1972

SUBJECT

CORPORATE SECRECY and AGRIBUSINESS

TITLE

"There Is No Role For Giants In A Republic"

Editorial from the St. Paul Pioneer Press:

> "The rise of the conglomerate (agribusiness farming) comes at a time when millions of farmers and farm workers have been displaced. Figures show 100,000 farmers a year are quitting the land, and 1,500,000 still in business are earning less than poverty-level incomes.
>
> "The competition from the conglomerates could be the final crushing blow to individual enterprise on the farm. The Congress should take steps to halt the corporate farm advance while there are still family farms left to save."

NFIB
Public Relations Division
Covington, Kentucky 41011

REPUBLIC OR CORPORATE-WELFARE STATE, JULY 4, 1976

Mr. Chairman, members of the Senate Subcommittee on Monopoly ~~and Agribusiness,~~ I find it a distinct honor to appear here as a witness in the defense of the Jefferson-Madison concept of what I believe THEY believed is basic to PEOPLE-GROWTH in a free and open society.

As Vice President and Public Relations Director of The National Federation of Independent Business, Inc., which reports more than 300,000 members, farm, bank, business and professional men and women in all 50 states, I bear the responsibility of so guiding my testimony that it reflects a majority member view, the views of my fellow officers, our Washington staff, and our field force of more than 300 dedicated men and women.

We know that our nation is in deep trouble, in agriculture, industry, finance, labor and government. In 40 years of traveling into every nook and corner of this blessed country, I have never found so little faith in the capacity of our free, private, competitive, capitalistic enterprise system, to meet its challenge; or so little faith in any possible return to the representative form of government we pretend to cherish.

This is true particularly with regard to the attitudes among our youth, and if these Hearings result in a program designed to restore their faith in capitalism and representative government, a loud AMEN will be heard around the world from all who love freedom.

Let us recognize as a sign of progress in this direction, the upsurge of public and legislative opinion favoring curbs on the expansion of giant agribusiness, to be followed by a breakup of other giants, but if this upsurge of opinion isn't guided into rational channels of reform, it could sabotage any attempt to preserve the benefits to be derived from large enterprise.

So many millions of Americans are already so dependent on massive corporate combines, massive unions, and massive government, that any serious breakdown could create the mass-mob-master cycle through which 19 civilizations perished; a fact our best scholars are now accepting.

Jefferson understood the yearnings and potential of average men and women. He understood their need to be protected against predatory forces, and he understood their dreams of becoming somebodies in a world of nobodies. "Trust no man with power," he warned, "but bind him down with the chains of the Constitution ... for it is not to the advantage of a Republic that a few should control the many when nature has scattered so much talent through the conditions of men."

James Madison, who fathered the Constitution, proved all the reasons for this hearing on the role of the giants, when he warned those entrusted with the conduct of government, to:

> "Hold fast to programs, both rational and moral, that have as their central goal a constant diffusion of power."

Men of great learning in the affairs of the nation. Men of recent prominence in the battles in the market place, have appeared before this Subcommittee to bear witness to the abuses of "corporate oversize". To belabor the mysteries behind the growth of the so-called giants, and the threat they pose to this Republic. ... Adams, Nader, Mueller - to name a few, and while they may disagree on approaches to the problem of giantism in corporate growth, there is apparent agreement that if the problem isn't solved, the capitalistic system is doomed.

It is my hope that in covering areas in which corporate secrecy and the disastrous effects of monopoly power are so evident, repetitious material can be held to a minimum, and that whatever contribution this testimony may make in obtaining Congressional reforms which may lead to a "breakup of the giants," that whatever is said may be interpreted in its proper light.

Oversize in the growth of the giants of agribusiness, industrial combines, chain store corporations, bankholding companies, or the new multinational, multiinternational conglomerates, is no phenomenon of corporate genius. It is not efficiency of operation or price advantages to the public, but, rather, the result of massive violations of the antitrust laws, discriminatory, monopolistic practices, secret affiliation, and billions in tribute wrung from suppliers, farmers, tax evasions, stockmarket gymnastics, and the people generally.

The end result: The near end to this Republic as the last best hope of earth, and if this glaring truth goes unrecognized by the leaders of our nation at the community level and at all other levels of our society, then we must prepare for a "new order of things" and for the fulfillment very soon of the prophecy of a great Chief Justice of your State of Wisconsin, Senator Nelson (and Senator Proxmire), who said in 1873:

> "There is looming up in our country a new and dark power. I cannot dwell upon the signs and shocking omens of its advent. The enterprises of the nation are aggregating vast unnecessary corporate combinations of unexampled capital. Boldly marching, not for economic conquests alone, but for political power. The question will arise in your day: Which shall rule, corporation or man? Which shall lead, money or intellect? Who will fill public stations, patriot, freeman or the feudal servants of corporate capital?"
>
> - Chief Justice Ryan
> Supreme Court of Wisconsin
> 1873

A prophetic warning of Mr. Henry Luce, Fortune Magazine, 1935, foretold in this great publisher's inimitable style, exactly what we are seeing today in a power struggle that only omnipotent, unlimited government could control. Said Mr. Luce:

> "If finally neither business nor government makes any move in the direction of breaking down big business into smaller, more compact, more mobile units; if bigness is allowed to remain the standard concept of the economy, then the American businessman - American politicians, and in short, all other American citizens, must prepare themselves for an order in which the powers of government are not limited; in which the right to risk and profit is not clear, and in which the making, the selling and even the buying of the products of the biggest show on earth are all mysteriously directed from above."

Here lies the challenge behind this hearing, Mr. Chairman, and the question: Republic or Corporate-Welfare State, July 4, 1976? is the most stark reality ever to face a people professing love of God, family and country.

Giant chain store systems, huge agribusinesses, corporate banking combines, and a Congress that has ignored a condition of economic murder and political suicide being committed in the same act, have virtually DE-PEOPLE-IZED the American Dream, delivering unto the next generation a nightmare of confiscatory taxation, absentee ownership and control, government deficits and debts, disillusioned youth, farm lands made naked of family life, Main Streets denuded of independent banks and businesses, and a condition in our lives when the President of the United States is calling for a federal-guaranteed charity level income for 26,000,000 FREE BORN citizens.

This is a confrontation of this hearing, Mr. Chairman, and when you declared your position in the matter of ending giantism in this nation, you were speaking not simply for the preservation of the family farm and a democratic society based on the fundamental principles we cherish as our American Heritage, but your were speaking for the preservation of civilization itself - grave as these words may sound to unfamiliar ears.

So was Justice Brandeis when he pleaded for an end to chain store growth. So was Congressman Wright Patman when he fought for a graduated tax on chains and an end to giant bankholding companies. So was Herbert Hoover when he wrote that we were "building up an economic autocracy upon which a political autocracy will rise." So was Franklin D. Roosevelt when he called for an "unwinding of all the holding companies, chains and combines" in his Monopoly Message in 1939, and so was Dwight Eisenhower when he made the growth of power a cry of warning in his Farewell Address.

I recall so vividly the efforts of General MacArthur to unscramble the Zaibatsu of Japan, and his final conclusion that Japanese managers had been under the control of the few for so many centuries, that the then present managers were incapable of making decisions as the head of unscrambled enterprises. The General wrote me that **"freedom of opportunity is impossible in a power economy,"** and I have always agreed with his view that the idea of a possible Russian attack was kept alive as a scarecrow to maintain huge expenditures, and that communist leaders used America as their scarecrow to keep doubtful followers in a state of uncertainty and fear.

Communism cannot feed on an economy of millions of owners of homes, farms and enterprises of all kinds, and no one knew this better than Karl Marx who wrote:

> **"One capitalist always kills many, from which comes the socialization of the labor movement, the involvement of the nations in the world market until everything is expropriated by the few."**

"When this happens," he said, **"we the communists will expropriate the expropriators."**

What I would like to ask, do the people of this country really know the identity of the expropriators of American power? Do they see in the corporate coverup and intrigue in all fields, the "mysterious control from above," that as far back as the old Public Utility Holding Company Act hearings, Owen D. Young could say he didn't believe **"ANY man, or men, have the capacity to manage the holding companies piled on holding companies"** that gave private utilities an image of public distrust that still haunts the industry.

Prior to the crash of 1929, few Americans knew where their utility company was controlled, and how many people today can name National Dairy Company (Sealtest) as operator of the Kraft Cheese Corporation? How many Americans know what chain runs their department stores? Or when they walk out of one shoe store into another that General Shoe, International or Brown owns them? Also, leased departments of their favorite department store chain? Two more stores down the block?

Isn't it true that no more than a handful of consumers know that Kroger controls Top Value Stamp Company? Super X Drugs? Discount houses, huge dairy operations, bakeries, meat processing plants, broiler operations, canning companies, candy factories, et cetera? In some cities operations under three or more different names? The topflight operator of ...... Buffets was unable to lease space in several shopping centers because the developers were "committed". A call finally came from Montgomery Ward, "come to Chicago," where officials stated simply: "We want to buy your company."

Montgomery Ward operates Royal Chef Restaurants. Has bought out big name restaurants as have other big chains, nearly all of which choose who and what shall be their competition in centers they control, and in some of the bigger shopping centers a conglomerate like Rapid American may own three to six (or even more) chains, but the names Rapid American or Glenn Alden never appears.

My question - WHY NOT? Why this "corporate secrecy"? Why not a regulation that says "Subsidiary of Montgomery Ward", etc., in prominent letters? Why not "General Foods' coffee----formerly Maxwell House"? Why not "Holiday Inn - subsidiary of Gulf Refining"? Why not "Federated Department Stores, formerly Shillito's, Lazarus, or Fox"?

Federated opens a store or buys a competitor in a given community, thereby operating under three or more different identities. It cries "discount" from one location and then charges itself with misleading advertising from another location. A top official of Federated told students in Miami that "absentee ownership and control has created the greatest crisis in America since the Civil War," but how many of those students knew who and what was Federated?

Let me inquire, please, is this a brand of corporate secrecy that will escape investigation? Is it secondary in importance to knowing the inside workings of a conglomerate that juggles its accounting? Plays checkers with its subsidiaries, and makes the IRS look like H. R. Block & Company? Do we have a "role of the giants" here that makes Heublein, Inc. (alcoholic beverages) buy up Kentucky Fried Chicken -- a sure shot that Colonel Sanders "finger lickin' good" chicken will taste better washed down by Heublein?

I wonder if any conglomerate would swallow Kentucky Fried Chicken enterprises if they had to conglomerate the name? Wouldn't this be one effective approach to reducing mergers? So IRS could collect more taxes and 'Frankie and Johnny' would know whose chicken they were 'finger lickin'?

Shouldn't the housewife know that 90% of the cereal she puts on the table comes from FOUR companies; the toast she serves from a conglomerate in Kansas City, and the butter and cream from giant Borden, National Dairy, Golden State, or Foremost - the latter being in the whiskey business, one of the biggest wholesale drug operators (McKesson & Robbins), and owner of a myriad of unidentified corporate entities?

As for old-time secrecy uncovered in the Robinson-Patman Act investigations, it was brought out that A&P forced billions of dollars out of suppliers in secret arrangements and payoffs that enabled them to buy up great holdings and expand and expand until they had virtual control of the fruit and vegetable business in the areas they served. A&P reported 10% of all retail food sales, and in advertising campaigns paid for largely by their big suppliers, they were able to bulldoze countless thousands of independent suppliers and retailers into the ditches of bankruptcy, ruining uncounted numbers of small growers, poultry raisers, dairy plant owners, and small dairy producers.

Consider the charges made by the National Farmers Organization and National Farmers Union that 60 million consumers passing through turnstiles every week give the giant chains a power that enables them to yo-yo the price of pork, beef, lamb, dairy products, or any other agricultural commodity; that with every exercise of this power, more country schools and churches are emptied, and, says a South Dakota report: **"For every six farmers who leave the land, a small business turns out its lights."**

Yet, we who seek an end to such power are accused of suffering from nostalgia for the **"Hiram hayseeds with a foot on a rail and a straw in the mouth,"** as being representative of American agriculture.

As Dr. Earl Butz put it, prior to becoming U.S. Secretary of Agriculture: **"Farms are going to get bigger, and you farmers better conform or else,"** but while he was saying it, the best equipped and biggest independent farms in the country were headed for the auction block because they didn't have the profits of big conglomerates such as British Petroleum with its giant feed lots, or Tenneco with nearly 100 subsidiaries to fall back on.

Our National Federation of Independent Business, and other organizations such as NFO, NFU, NARD, IBA, and the hundreds of state associations and local Chambers of Commerce we work with, are not anti-bigness, nor do we or they uphold inefficient small enterprise as a way of life. **We simply** believe, with men like Brandeis, that a **release** of the "**energy, initiative, resourcefulness, inventive genius, leadership,** and **enterprise** of the **many**" is the only approach to limiting the growth of giantism which Justice Brandeis believed was **"a moral and constitutional responsibility of government."** ... **How else** to prevent bigger welfare programs?

Probably no better example of the far-reaching role of giantism could be found than the ramifications of Sears Roebuck, described by the Fairchild **News** as **"a sociological and psychological factor in the existence of the nation and even the world; its life line coursing through all walks of life."**

Fairchild went on to say that Sears sells goods to one out of three families in the U.S., and is "capable at any time of delivering a knockout blow to its competitors - - wanting Montgomery Ward to be strong to keep the government off its back."

A bare glimpse behind the velvet curtain of this monster (which catalogues Rural America and adds up $10 billion in sales and more than 1,000 outlets) reveals a series of violations of the spirit and intent of the antitrust laws, and a hold on public opinion that is without a parallel in this so-called "Free Republic".

Staff researchers of the House Banking and Currency Committee reported Illinois Continental Bank holds two interlocking directorships on the board of Allstate Insurance Company, subsidized so heavily by Sears Roebuck.

One of the two men is not only a director of both Continental and Allstate, but is president of Sears. Another Continental director is a director of Sears and Chairman of the Board of Allstate Fire and Allstate Life.

Sears' Board Chairman is a director of First National Bank of Chicago - which is so big it could make many conglomerates look like pygmies. In turn, the Board Chairman of First National Bank & Trust Company, fifth largest Chicago bank, has a director on Sears' board, and there is a Sears Bank and Trust Company in Chicago, and Allstate Life owns 10% of its shares.

So, what do we have in this instance? A chain holding company holding a bankholding company? Does anyone really know what it actually is, or what it represents? **What effect - such power in foreign countries?**

Look at Cleveland, Ohio, a dying city surrounded by a ring of Sears shopping centers that draw people from its core and from all surrounding communities, sucking the lifeblood from its economy like a huge vampire.

For many years there was a rule in this country that a corporation couldn't operate its own mutual fund, but Sears succeeded in having it repealed, and created the Allstate Enterprises Stock Fund, a subsidiary of Allstate Insurance with 8,000 salesmen and a million prospectives. Fifteen million shares were registered which were sold out overnight.

Sears is building the world's largest office building in Chicago. Has a 50% or more interest in 105 manufacturing companies. Operates a chain of finance companies. Finances over $2,500,000,000 in credit sales reporting 18% interest earned. Is in the industrial supply business. Has

Sears Allstate Motor Club. A tie-in with RCA and Shell Oil. Moving heavily into the floral business. Operates restaurants under old names with no Sears identification in view. Runs drug stores, tire centers, service stations, and income tax preparation stands - Sears Towns - and in recent months has tied up with the Marshall Fields chain in a joint development company to build gargantuan shopping centers that will include housing, educational and recreational facilities - phasing out all concessioners who might compete with its own chain; and who knows what else?

The retail business of 1971 reached a total of $350 billion that is being monopolized, terrorized, bureaucracy-ized and socialized - not for any reasons of "efficiency" of size, or for the public good, but to satisfy the uncontrollable greed of its architects.

Senator Hugo Black, who carried his sentiments into his Supreme Court decisions, said in 1935, that **"chains in everything will grow in such size and power until someday America will be controlled by a few corporate masters."**

Senator Burton K. Wheeler predicted an **"economic plutocracy,"** and Senator Joseph O'Mahoney, one of the greatest minds ever to grace the U.S. Senate, pleaded with those who feared monopoly power to **"keep the faith"**; that this government **"is not blind to power, and once formed, the American people will come to the defense of their Heritage."**

These men were Democrats, but what about the statement of Senator Barry Goldwater in 1958 when he spoke of the possibility of **"one corporation controlling retailing,"** and what about the late President Eisenhower and some of the other most outstanding Republicans of today, in both the House and Senate, who see what Black, Wheeler and O'Mahoney visioned so many years ago? - **"Giantism biggest U.S. threat."-Bob Taft,Sr.**

John K. Jessup, Chairman of the Board of Editors of Luce Publications, voiced the challenge before this Committee and before Congress, The White House and federal enforcement agencies, when he declared in **Life:**

> **"Fifty years ago all corporations were limited in their right to own other corporations. They can be limited again. A law providing for some form of federal incorporation could change the whole course of corporate development."** Mr. Jessup continued:
>
> **"Such a law would be unwise (our own position) if it reduced the size of business units below maximum efficiency, but many businesses are too big for their own good. They have long passed the point at which (one** economist describes it) **the savings of large scale production are offset by the wastes of large scale**

(see next page)

(Jessup quote continued)

> oversight. ... No government can ever locate that point exactly for every industry, but ours can at least make a start; WE CAN OPPOSE UNNECESSARY GIANTISM."

Both the **Detroit Free Press** and **Detroit Daily News** made the same recommendations, but included labor, and both agreed that if nothing is done along these lines, then some new form of control over the operations of the giants will have to come.

The president of National Biscuit Company suggests manufacturers might have to create their own jointly owned distribution systems to compete with the chains. An excuse given by some officials of huge agri-business conglomerates who view the economy as a smorgasboard at which to continuously gorge themselves with more companies; to be powerful enough to deal with the giant distributors. Where does this combination leave the individual entrepreneur if not in economic oblivion?

During the period of 1900 to 1904, Senator William Mason (Illinois) saw what was to culminate in the Penn-Central bankruptcy and the decay of independence under unenforced laws designed to preserve this Republic, when, in the midst of his fight against the Rockefeller-railroad-pirate-combine, he castigated lawmakers for introducing anti-monopoly legislation at the beginning of each Congress, only to let it die and then re-introduce it again with long, useless studies that get nowhere.

Haven't such words as these echoed down through centuries of neglect of the power issue, and haven't they proven to be true? In the very same year, 1904, in which Senator Mason felt so helpless, the **Wall Street Journal** looked at the power problem and said, editorially:

> "Where else has there been such concentration of capital as in the U.S.? Nowhere else does it involve so much grave peril as in this country, for it raises the question whether free government may not break down under such financial power aggregated in so few hands. It is just this situation which is responsible for the prevailing unrest and discontent."

Sixty-six years later this same great publication (whose editors have shown unlimited guts in reporting the shenanigans of its subscribers) featured an article by Lee Barton, staff writer, in which Mr. Barton looked into the future to see the last company in the U.S., General Motors, being taken over by "American Consolidated Everything Corporation."

Samuel Pisar, in another fact-packed analysis of the multiinternational conglomerates (which Peter Peterson wants Congress to help some more) declared:

> "Feeding upon itself like a sorcerer's apprentice, the multiinternational entity has detached itself from its American moorings, re-surfacing on all continents as something infinitely more complex, but without allegiance to any sovereign nation or political doctrine - a new stateless challenge roaming the globe in disregard of national law, fiscal supervision or prevalent business standards.
>
> "If political power is unable to lead in the attempt to create orderly ground rules, it will have to follow economic power in the creation of a supernational, multiinternational system of rules and institutions without which the system will not survive."

Mr. Chairman, members of this Committee, I beg you, tell us what you think we can do to preserve this Republic. Can there be any good in allowing the ITTs of "I Took & Take" to build their corporate empires without any ground rules or curbs on their appetites? Did Paul Jones, Glenview, Illinois, State Bank, put the right tab on them when he said they suffer from "Megalomania"? Was President Nixon playing mouthwash politics when he said "we are on the Roman road to decay", suggesting we do something about the giants before they UNDO democracy? Are we to ignore Oren Staley, President of NFO, who says the agribusiness conglomerates and their Siamese twin counterparts are moving into all parts of the economy and the world, and are putting out the lights in Rural America? Can we ignore a Willard Rockwell who sees the loss of our economic independence and markets at home and abroad as a world disaster? A disaster that can be prevented only by unifying the family farmers, independent businesses and local bankers behind the fundamental principles that gave meaning to free enterprise and representative government?

"America's Vast Heartland Grows Still", headline, Detroit Free Press, November 16, 1971, under the byline of George Cantor who unraveled a heartbreaking account of land-fleeing farmers, children being herded into the city; the words of a State Senator rancher, farming 28,000 acres: "It's all going back to Darwin - survival of the fittest." Fifty-two families down to one, and boarded up stores in Newell, Michigan; two grocery stores, a druggist, cleaning plant, etc., GONE. The doctor so far away you won't dare get sick "when the snow's down".

On my desk is a letter from Governor Forrest H. Anderson, Montana, who states that his State is being taken over "by huge agribusinesses", and he doesn't know what to do. He wants to know if Wimmer knows what to do. ... Another letter from James Exon, fighting family-farm-minded Governor of Nebraska where support is building up behind a bill to

outlaw purchase of Nebraska farm land by any corporation with more than $3 million in assets. He views every corporate takeover with **angry alarm,** a feeling shared by Minnesota's Governor **Wendell R. Anderson** who promises support for any **legislation that is designed to stop the outsiders from land-grabbing Minnesota.**

These men, like Jefferson and **Madison,** like John Knight of the **Detroit Free Press** who called the giants **"the curse of America",** are either right or wrong, and if they are wrong, then for God's sake let's quit fooling our kids with free enterprise and representative government talk, and send our Declaration of Independence and Constitution to some undeveloped country where people can use them in **their pursuit of peace, prosperity and happiness** as they were once pursued by **non-welfared** Americans.

Surely, the thought of such a catastrophic event should strike **TERROR** into the hearts of any American who loves his flag and what it stands for: **"Freedom Under God"** - not Charity Under the State - the Welfare State which the experts say we will "march" to, **July 4, 1976.** ... If not, why are we talking about guaranteed annual wages for 26 million free born Americans, and passing out billions of dollars in subsidies, and getting ready for over $100 billion in federal deficits in three years?

I repeat the question, Mr. President, Mr. Chairman, and Members of the House and Senate of the United States: **If the big chains and agri-businesses, and bankholding companies, are so good for this nation, why our debt, crime and welfare-ridden cities? ... Why the liquidation of the middle classes by confiscatory taxation? ... Why the frustration of millions of our youth who have no faith in free enterprise or representative government,** and why such abject fear of Communism that we shake and quake, and spend and spend and tax every time the commissars announce a new ship, missile or submarine?

Washington libraries, basements, dungeons, files, shelves, and closets are stacked with the results of hearings on the Sherman Act, and all the way up to the hearings on Robinson-Patman, Bankholding, Celler-Kefauver, before which I testified, FTC, FCC, SEC, ICC, Justice, Small Business Committees and subcommittee investigations by the hundreds have revealed the destructiveness of OVERSIZE - each searching party to finally lose what they were hunting for, on the next Congressional calendar.

Persons appearing before this and earlier committee hearings on monopoly power have placed considerable emphasis on the merger-mad drive of Harold Geneen, ITT. They have enumerated the events that led to the economic and political insanity that culminated in such a bigamous, corporate marriage as the **New York Central** and **Pennsylvania Railroad** with some 400 subsidiaries. The merger consummated AFTER our NFIB office (Covington, Kentucky) and such economists as Leon Keyserling, predicted it would result in the biggest bankruptcy in corporate history.

In a speech in Washington, attended by Members of Congress, ICC officials, a number of lawyers representing the railroads, Mr. Keyserling, and representatives of the press, I said that the president of the Pennsylvania had argued the merger would lead to "savings to be used to improve passenger service," but that on a later occasion he declared: "We will have at least $100,000,000 more to invest in non-railroad enterprises."

My point is, here we had a demonstration of corporate secrecy and giantism that unquestionably has put the railroads on the track of ultimate nationalization if present trends continue; so what now?

Did the American people have any idea of what was really going on behind this merger?

Did the directors of either railroad know of the manipulations of the few? Did the bankers and the Supreme Court know?

Was there more than a handful of otherwise informed people in high public office who had taken the trouble to find out that the Pennsylvania owned hundreds of thousands of acres of valuable, undeveloped land, housing developments, shopping centers, entertainment and recreational properties, plus all those buildings on Park Avenue; plus trucking companies, airline services, and additional investment properties no man or group of men could possibly guide in the public interest?

Someone has brought out in these hearings that a company like Maytag must report virtually all of its corporate affairs to the IRS and other agencies, but Frigidaire can lump its reports with those of General Motors. This causes me to ask: what about Champion Spark Plug Company vs. AC Spark Plug Company? Fisher Pen Company vs. a Gillette?

It took 25 years of unceasing effort to win separation of GM from du Pont - amid predictions of a stockmarket crash and other eruptive forces that would "reverberate throughout the whole economy," but stocks of both companies went up, GM was released from du Pont's monopolistic position in selling and servicing major needs of the giant motor car manufacturer, and GM officials were free of the du Pont influence. All over the country it was said it couldn't be done, but it was, and if the drive to separate GM from GMAC had succeeded, it is very likely that no fewer than a thousand auto finance companies would still be in business, and Ford and Chrysler would NOT have entered captive financing.

Belaboring General Motors has become almost a habit, but isn't it fair to question the enormous power of this giant and the union power that accompanies such size? Shouldn't we ask WHY a takeover of AC with no reduction in the cost of AC plugs and no quality superiority over an independent such as Champion? Did we get more sturdy auto bodies when GM absorbed Fisher Body? Did GM build a superior refrigerator after absorbing Frigidaire? Ought not the retailing of automobiles be completely free from competition from either GM-owned or controlled retail outlets? When do buyers know when they are not dealing directly with General Motors?

Prior to 1889, no state had conferred upon any corporation the privilege of buying up the stocks of another corporation, but in that year the State of New Jersey changed its laws, allowing a corporation to file and proceed to buy the stocks of another corporation or its properties, and to issue stock as payment. Right here is where our present "role of the giants" had its real beginning.

By 1893, all any corporation had to do was put a clerk in some hidden office in the state in order to bypass the antitrust laws of any other state, and by putting three employees in New Jersey, there wasn't anything the merger crowd couldn't do. In quick succession, Delaware; Oklahoma; West Virginia; Maine; South Dakota; New York; and Nevada fell in line. We know pretty much about what followed until the 1911 Standard Oil decision.

Out of that breakup were born nearly 2,000 new competitors in the oil industry. Wildcatters flourished and a new era was opened, but today Standard of New Jersey is operated like an empire - a government within a government - and its subsidiary, Humble Oil, is moving into every part of the country, swallowing up competitors, masquerading under numerous aliases, and is now big enough to swallow its parent.

Standard of Indiana absorbed three insurance companies in succession. Standard of California swallowed Standard of Kentucky, et cetera, et cetera, and across the whole country, independent dealers (so-called) compete with their own masters, are ousted from their little businesses on the slightest pretence, and in many cases forced to take on rigged games and trading stamps, with no recourse to regulating agencies that promises relief.

Operation of a service station is a natural incubator for the development of individual enterprise and economic independence, so why not divorcement of the giants from operating tire, accessory or retail outlets of any kind? From operating motels, restaurants and a myriad of other enterprises opened with billions of dollars in depletion and double depreciation allowances? This country's free enterprise was supposedly conceived to provide an opportunity for the greatest possible number of NOBODIES TO BECOME SOMEBODIES, but we let the monopolists reverse the process, and we are making NOBODIES OUT OF SOMEBODIES - all the way up and down the economic ladder.

May one wonder if we Americans haven't shown the most abject submission to corporate oversize of any people who ever had a taste of freedom? Has our worship of Standard Oil to today's K Marts become a parallel to those who closed their eyes to murder on the high seas, rustling in the stolen silks of the Captain Kidds? Has the vassalage of **dependence** become preferable to **independence** - if there is attached to it a promise of **"something for nothing"** among the junk of the discounter, or in a handout from the state?

Mr. President, Mr. Chairman, Members of Congress and federal agencies delegated with the responsibility of strengthening and enforcing anti-monopoly laws, I say to you that no person, young, old or unborn, is escaping or will escape the dire influences of the giantism that pervades **every function** of this society, and I say to you, with Oliver Wendell Holmes, Lord Acton; the many patriots among NFIB members, W. W. Swaim of NFO, Congressmen Don Clausen, H. R. Gross and John Dent, and, yes, I say with all the Presidents since Washington, that only in decentralization do free men **keep** their freedom, and if we fail now to meet rural and urban, national and international challenge, our youth will meet it in **ways that may break our hearts.** They're in the first stages of open rebellion against what they have identified as some kind of - **"ESTABLISHMENT"**, but are as confused about it all as a termite in a plastic yo-yo.

Yet, who in high places could undo any confusion by telling them how Jimmie Ling put an LTV together with hundreds of millions in defense dollars? Take over a Wilson Packing Company in an overnight maneuver, or a Jones & Laughlin - with more LTV paper money? Who could justify Greyhound's conglomerate merging with Armour's conglomerate? Goodrich appealing to Ohio's Governor to protect it against Gulf & Western; Host, Inc. absorbing Cudahey; Meshulam Riklis trading Rapid American Paper for Glen Alden Paper? ... Corporate secrecy, a corpocracy?

Riklis owned 13% of Rapid American; Rapid American owned 50% interest in McCrory; McCrory had 14% interest in Glen Alden; Riklis also chairman of McCrory; McCrory "owned" Best & Co. and Lerner stores, and with Lerner, McClellan-Gleen, Green, National Shirt Stores, Shopmobile and McCrory restaurants under some other alias (all of which may go into a single McCrory shopping center), and ALL appearing in the public mind as **"COMPETITORS"**.

Add to this, Rapid American-Glen Alden-McCrory cross word puzzle, the control of Schenley Distillers; and through its RKO-Stanley-Warner holdings its theatre operations; and through its BVD and Playtex Divisions operating in 32 states, and where do we end up except in a suffocating veil of secrecy and corporate giantism?

Congressman H. R. Gross (Iowa) introduced me a long time ago as a practical idealist, and I want to be idealistic and practical about this issue. It doesn't take much of either to know that in this Rapid American, Glen Alden, McCrory corporate menagerie we have a non-free, non-capitalistic conglomeration of economic power that the body politic is presently unable to cope with. It is true that FTC, Justice, and Congress have held in check enough economic power to give us our chance for a turnabout; a chance to unscramble these conglomerates, but if it all boils down to a Vietnam approach to the problem, no major victory on any front will be possible.

People generally will agree that it doesn't take a giant to run a haberdashery, a pharmacy, neighborhood food store, machine tool shop, or a bank. That Main Street, U.S.A., and Rural America weren't opened up by giants, but by individuals who struck out across the plains and unchartered mountain passes to win their own opportunities and independence.

Individuals brought the Chicago Tribune to world prominence; the one store world-famed Marshall Fields (now a big chain) was an individual enterprise; the one hotel Palmer House was a family institution - world-famed. Following the Chicago fire, when 118,000 buildings were burned to ashes, it was individual men and women who built a new city out of those ashes, just as San Francisco rose from its earthquake. There wasn't a chain or a conglomerate in existence.

Could the people of Chicago survive anything even approaching such a catastrophe today without 90% federal rehabilitation? Aren't most of the mayors and governors asking the federal government to bail them out of their sinking welfare ships? Aren't we stuck with a bigger slum problem in New York City than exists in all of Communist China?

Things are indeed in a sad state when men compare a corporate farm-operated tractor to a farm mother, in terms of "efficiency". I repeat, farm mothers in days gone by could save enough money on the sale of some chickens, fruit or vegetables to put their boys through college, many of whom have risen to world prominence. Today, a farm mother couldn't sell enough poultry at a profit to put a boy through kindergarten; yet, we trade off 3,000,000 of these mothers for who can say what?

One answer to that question might appear in a brief account of the bankrupt Black Watch Farms Corp. (agri-business), that sold cows to city cowpokes looking for a tax loophole. It was just as hard to find the head cowpoke who, when located, was said to be sitting in a million dollar mansion with a Rolls Royce at the door, and being sued by his own father.

According to the Wall Street Journal, head cowpoke Jack Dick had dickered Bermac Corp., a New York leasing firm, into heavy buying of

Black Watch stock with Bermac stock, which Dick reportedly sold to a Bahama bank evidently looking for a tax bonanza. Bermac unloaded more BW stock on State Mutual Assurance Co. Bermac then sued Dick. Then Dick sued Bermac and Mutual, and State Mutual sued an accounting firm in Chicago for misleading them.

Now - stack up this unholy cattle raising, cattle feeding stunt against the social and economic life of a hundred independent ranchers and feeders, and you begin to realize what happens when promoters enter the farm picture. Yet, we are told it takes a Black Watch or a Tenneco to "efficiently" fasten a milking machine to a cow, but you'll find grade school youngsters doing it just as efficiently on many dairy farms.

The great Ralston Purina agribusiness announced recently it is selling its poultry operation - after killing off hundreds of independents. Ralston Purina has opened nearly a thousand chicken, pancake and burger outlets - to run more independents out of business.

What we are doing in this country in an economic sense, is to make "the stone the builders rejected" the cornerstone of our modern body economic and body politic, and the cornerstone is crumbling under us as we watch the giants go marching by.

HUD Secretary, George Romney, has been saddled with an impossible job because we're taking the people out of the slums before we take the slums out of the people. Romney said 25 years ago that we wouldn't lick such problems if we didn't take the giants apart. He suggested Congress break up General Motors into 11 companies; Ford into five, and Congress listened and applauded, but moved to other issues also inflamed by the giantism and corporate secrecy Romney had targeted. For example, he knew what General Motors Acceptance Corporation was to General Motors: a powerful captive finance company - the most powerful in the world, and with more wealth than many of the states.

As president of American Motors, he knew that GM could buy AC Spark Plugs from itself at 12¢ each. American had to pay the going outside price. Neither did American have a captive finance company to recover its losses on car sales.

OVERSIZE? OVER-CONCENTRATION? Norman Thomas said it would deliver both political parties into his Socialist Party camp, and the hour of this delivery is so close that nothing can save the two-party system except all-out decentralization in agriculture, industry, finance and labor, patterned after the GM-du Pont divorcement, the Public Utility Holding Company Act, and the FCC regulations limiting ownership of radio and television stations to seven by any one corporation.

Failure to follow this pattern has made the Federal Trade Commission a toothless lion, the Department of Justice a mere shadow of what men like Richard McLaren wanted it to be: an arm of the law designed to protect and perpetuate the honorable growth of big business as well as small business.

Congress should set an antitrust policy that is based on constant decentralization of economic power. Congress should create a tax climate that will encourage the giants to "unwind". To franchise their countless outlets to independents because tax rates make it attractive for them to do so.

FTC has made its long awaited move against the cereal industry, 90% owned by four companies, but what is the prospect for an early settlement when we never know what the courts will do with a no-antitrust-policy?

Sears Roebuck ought to be separated from its insurance and finance companies, its mutual funds and nearly 200 factories. Sears should not own a bank, and some degree of fairer competition would result from divorcing Sears from its shopping center development subsidiary.

Congress passed recent legislation favoring newcomers to Rural America with a tax concession, but what about the independents who are there and are hiring farmers who can't make a living on the farm, and who want to keep their kids in towns? Why not a tax deduction for the independent on Main Street (simply because he is an independent) so the kids of Rural America can start a business or maybe continue one - the kind of enterprise that put Father & Son signs up from coast to coast, making Main Street, U.S.A., an avenue of unlimited opportunity?

Congress should listen to the House and Senate Small Business Committees and their dedicated staff members. Congress should end all discriminatory practices existing between big suppliers and big distributors; and listen to a vice president of Revlon who told an NARD convention of disappearing pharmacists, that the chains and discounters "no longer sell products and service, but manipulate people and money." In a few years we have virtually socialized private medicine and health care in this country; yet, millions fear the future despite bankrupting increases in Social Security and health care. ... Are the railroads next? And after that, our shipping and city transit companies?

Mrs. Virginia Knauer, Special Assistant to the President for Consumer Affairs, charming, intelligent advocate of the smalls, says the real innovations, the real inventions "start with the little guy." That "all seven of the major inventions of the petroleum industry came from the smalls" - so why not some kind of tax subsidy that encourages little guys to make it on their own instead of selling their ideas and discoveries to a giant? Why not open American markets to Americans again? Why not make the market healthy enough for importers and exporters to do business on a two-way street of fair wages, fair prices and fair profits; or tariffs until workers in other nations can buy our goods?

Free trade is a cradle of giantism: national, multinational and multiinternational, because it destroys the small and medium size competitor who is paying honest wages and high taxes; but Congress gave up its prerogatives of foreign trade regulation to dreamers.

On another front, Congress is being told that it is "no longer possible to service smaller merchants and their smaller wholesalers because of rising overhead and taxes," but if unholy discounts under the name of "volume" now going to the biggest chains and distributors, were spread out, servicing would be possible, and the little guys wouldn't have to close their own businesses and end up in a mini-or maxi-mart of one of the giants. The role of giantism and its effect on this area of the economy is widely discussed but sadly unattended.

Congress should outlaw the use of a livelihood product as a consistent bait used to destroy the weaker competitor. Examples are coffee, chickens, carnations, shoes, dry cleaning service, milk, drugs ... . Congress should establish some understanding by federal agencies that orderly distribution policies that protect the market against predatory practices are NOT harmful to the consumer.

Preparation of this testimony has come at a time when Nebraska's legislature is considering a bill to "end corporate raids on Nebraska farm lands," by making it unlawful for any corporation with more than $3 million in assets to acquire its farm land. By ending excessive subsidies and tax advantages of corporate farming, Congress could take its first step in this direction, and at least retard corporate farming trends until national legislation patterned after the Nebraska proposal could be passed.

One conglomerate, Beldridge Corp., spent $185,000 to develop 20,000 California peach trees because it had a tax advantage. The biggest growers said there was no chance to compete against these tax subsidized monsters which now enjoy new water irrigation rights that is another form of excessive subsidy. If Beldridge were prohibited from writing off its peach losses on its conglomerate report, there would be no Beldridge peach trees.

California's Governor Reagan knows his State is in a squeeze. He knows Los Angeles and San Francisco are falling into the hands of Bank of America, of the chain store systems like Safeway, a conglomerate built up through the purchase of more than a score of smaller chains - built up by wave after wave of loss leader selling that wrecked orderly food marketing in entire cities. Now Safeway has entered more lines and its role as a giant represents open economic murder. Governor Reagan should welcome a breakup of such giants now taking over his whole State, because there is no other way to restore economic independence in California or any other state.

What else if not this as a solution to the racial problem, youth crisis, tax crisis ... ?

California, like all the states where horse racing is allowed, has state and federal officials protecting the mutuel window gambler against horses being watered or weighted. Competition is evened up. Jockeys and owners are barred from the track when they are caught violating the rules. Football players are benched for unfair tactics when caught. Basketball players likewise, but where is the sportsmanship, the fair play, in the market place where the greatest game on earth is being played? Why no rules against a little guy getting his teeth kicked out by the giants who wear the brass knuckles of OVERSIZE while the big referee in Washington sleeps on his bench?

Restoration of genuine free enterprise in this country could turn our whole welfare program around. As Congressman Wright Patman said in 1935, you either let the system provide jobs by making the system work for the many or provide relief for its victims. The Robinson-Patman Act was one approach, but when was it really enforced?

President Nixon said the "bankholding companies are a combination of business and banking that should be broken up," but look at the kind of bankholding company bill we had when it came out of a shadow boxing match in the House and Senate. We had a bill that has enabled holding companies to leap-frog from state to state like the banks in Kansas City and St. Louis that have swallowed about 40% of Missouri bank deposits in two years.

Everybody should know that America needs big banking institutions, but America doesn't need a Bank of America with 40% of California's bank deposits, and doing a branch credit card business that gives it a hold on every community in 50 states. Big banks and big businesses are required to build skyscrapers and run some of our steel mills and airlines, but if those big planes are not filled with a great middleclass going back and forth to vacation resorts and buying and selling the goods produced on our farms and in our factories, the convention halls of Las Vegas and Miami will thunder with a ghostlike silence that will be felt around the world. Then it will be too late for politicians to write any history as they gaze upon the hulk of free enterprise protruding from the reefs of what the Washington Post called "corporate feudalism". What Irving Beller, CIO-AFL economist, told a Congressional Committee would "turn the country into one company owned store - run by the government".

American businessmen of the caliber of Owen D. Young and Theodore K. Quinn, key men in the growth of General Electric, turned against "oversize", Quinn later calling giants "unconscionable monsters". Both men had learned from experience that man wasn't capable of guiding a giant, as proven in GE's continuous need of defense contracts; as proven in the Penn Central collapse. The Lockheed incident with 200 retired military people on its padded, government subsidised payrolls.

WE THE PEOPLE allowed this prostitution of freedom to go on and on until we have become like whores seeking favors wherever we can find them - risking our future until -

A great educator like Dr. George Charles Roche III, President of Hillsdale College, can tell us we stand at the edge of the "darkest of dark ages because Western man has departed from his Heritage." Until -

Daniel Borstein, Smithsonian Institute, can say "we have wandered out of our history with no place to go." Until -

Texas, a Republic within a Republic, pleads with the federal government to take over its welfare burdens. Until -

The mayor of Boston cries out: "I think we are on the verge of a breakdown of our civilization." Until -

The press, newscasters, economists and political leaders can say corporations are now more powerful than nations.

My friends, our soldiers who return from a winless war deserve something better than a winless economy. So do the youngsters who look bewilderingly upon the graft, corruption, crime, stockmarket scandals, confiscatory taxation, burgeoning welfare demands, underfinanced mental institutions, neglected children whom Congress talks of putting in day nurseries as they do in Communist China and Russia, "so mothers can do the work their husbands are unable to find."

NFIB's field force of 300 dedicated men and women know there are 80 million people working, and this is good. We of NFIB can show that we have 300,000 members who are still in business, but we also know that Congress, the mayors, governors and other officials are trying frantically to meet growing demands for new taxes. We know that ...

One man looking for a job and unable to find it, is a one-man depression no matter what you tell him to the contrary. He's having his Waterloo - now; and so are the millions of little guys hanging onto their businesses by the skin of their reserves or borrowing power. This is no encouragement to the sons following after them, or an inducement to take down a For Rent sign on an empty store window and begin a new business.

Men who love freedom, men unafraid to confront the task of reversing all trends to unnecessary centralization of power in the United States, can write a Second Declaration of Independence to help make the first one live.

How else to meet the challenge of world socialism. How else to win the plaudits of American youth? How else to meet a federal debt of $400 billion? How else to raise enough taxes to clear the slums and care for the helpless? How else but through decentralization to keep from depersonalizing our society and denuding it of its form of government?

Either the giants must go, or capitalism as Jefferson and Madison viewed it will ultimately be declared, in the words of a committee of The American Historical Society: "Obsolete in theory, ineffective in practice, a parasite on the backs of the people, and ought to be abolished."

Peril to Independents

By TOM NYBERG

WASHINGTON (FNS) — The elimination of the smaller, independent supermarket or food producer by price-cutting chains or major manufacturers was held up as a specter to Congress — unless Congress amends the Clayton Act to prohibit "predatory below-cost selling."

Representatives of the National Independent Dairies Association and the Independent Bakers Association described their positions last week before Sen. Philip Hart's Antitrust subcommittee of the Senate Judiciary Committee, which is holding hearings on legislation to ban below-cost or "loss leader" selling practices.

The bill (S. 1457), co-sponsored by 34 Senators, is similar to bills that have failed in this past session to get through Congress.

Both independents testified that many of their members had been driven out of business by big corporate processors, who can afford to sell bread and milk far below cost by making up losses through higher prices on other products.

FUTURE OF INDEPENDENTS
and
ORDERLY DISTRIBUTION AT
STAKE IN BOTH PROPOSALS

Bills Seek To Block FTC Attack On Soft Drink Licensing System

WASHINGTON (AP) — A Federal Trade Commission move designed to increase competition in the soft-drink industry encountered strong Senate opposition Monday.

Sen. James O. Eastland (D-Miss.) introduced legislation signed by more than 30 senators to allow soft-drink bottlers — and all other food — product distributors — to continue operating under franchise systems that give them exclusive distribution rights in designated territories.

Ed Wimmer, NFIB
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March 1972

312,000 FARM PEOPLE LEFT THE LAND IN 1971

After subtracting production expenses from cash receipts from marketings, we find farmers received $400 Million less income than they did in 1950. - Yet produced 38% more food and fiber.

To: The Honorable Gaylord Nelson, Chairman
Subcommittee on Monopoly,
Senate Select Committee on Small Business

Hearing: The Role of Giant Corporations in the
American and World Economies

Corporate Secrecy - Agribusiness
Washington, D. C., March 2, 1972

CORPORATE ACCOUNTABILITY AND THE FAMILY FARM

Sheldon L. Greene
National Coalition for Land Reform

CORPORATE ACCOUNTABILITY AND THE FAMILY FARM

In the past months, the world has been treated to a partial aerial survey of the landscape of Mars. Mars, as we know, is some distance away from the earth, and is well suited to its name. It is an inhospitable place. Similarly, the lunar surface has been subjected to a limited but exhaustive geological survey. These achievements of man represent the high points of a project which has already cost the taxpayer in excess of $20 billion. At the same time, the Federal Communications Commission disclosed its inability and lack of funds to make a study of long-distance telephone communication.

Mars and the moon, notwithstanding their mystery, have a relatively small impact on the lives of the average American. Much greater is the impact of General Motors, General Foods, Purex, Tenneco, A.T. & T., and the one thousand corporations that do twenty-two percent of the business of the United States. Equally significant to the average American is the nature of the land itself--its resources, limitations, expendability and the character of agriculture in the United States.

The interrelationship between these subjects is simply that, while the development of data by our society proceeds willy-nilly, the data which we most require in order to develop intelligent direction is either unavailable to us or deliberately kept from us. Initially, it must be said with respect to corporate data that business and public agencies do not hold in high regard the public's right to know. Too frequently the public agency adopts an attitude toward its regulated industry not unlike that of the confessor to the penitent: "So long as you tell me everything, your sins will be absolved."

Consider these examples: The Veteran's Administration recently made a study of hearing aids in order to obtain the best buy and the best quality, but refused to make the results of the study public, because they didn't want to damage the reputations of the manufacturers of inferior hearing aids. A public agency, paid with the taxpayer's funds, chose not to disclose to the taxpayer information clearly beneficial to his interest.

The San Francisco Chronicle, on February 14th of this year, disclosed that the California Medical Association had made an ongoing study of 500 California hospitals, identifying those in which health care services were deficient. The Association reluctantly, and only after being threatened with a subpoena, made some of this information available to a U. S. Senate subcommittee. What would a doctor say if his city failed to reveal known pollution at a local public bathing beach? Clearly the notion of responsibility to the public--even when the issue had a tangible effect on public health--was subordinate to the preservation of the good name of the health industry.

Beyond the fact that businesses, public agencies and organizations fail to disclose available information to the public, is the problem of the government's failure to collect data important to the public and public policy. For example, the government has failed to analyze the significant changes that have been occurring in rural America. We know that each year 100,000 farms are abandoned, and that rural America has sustained a population loss of 40 million people in the last 50 years. Concomitant with the abandonment of small farms and the migration to the cities of a heretofore agriculturally-dependent rural population has been the increasing entry into agriculture of multipurpose business interests, bringing with it an increase in farm size and absentee ownership of the land. Once-populous areas occupied by independent small landholders interspersed with small rural service communities are being transformed into feudalistic estates--possibly one of the most significant economic and social transformations to be experienced in our history. The phenomenon is infinitely more relevant than the recognition that the lines on Mars are not canals, or that the moon is sorely deficient in cheese. Yet a rural sociologist, Richard Rodefeld, who undertook a study of this phenomenon as it affected Wisconsin in 1970, concluded that there was "a lack of objective, empirical information" on the subject.

> This has been lacking for even the most basic of facts, such as the respective numbers and basic descriptive characteristics of the various farm types. Except for one study, done in the 1940's, which has questionable generality for midwestern agriculture, claims as to the detrimental effects which would be associated primarily with large-scale industrial farms have come from individuals and organizations from the rural sector, based primarily upon individual observation.

To my knowledge, neither federal nor state governments have undertaken a comprehensive study of something as basic as who owns the land--other than to maintain obscure county tax records. Nor has a comprehensive study been undertaken of land use.

An example of the inadequacy of such data is the disparity between federal and California statistics on a matter as important as farm size. The Agriculture Department of the State of California asserts that the average California farm size is about 650 acres. In contrast, the federal census identified the average farm size in California as no more than 450 acres--a somewhat broad statistical disparity.

On the corporate side, this Committee is well aware of the deficiencies in data reporting--not only regarding the identification of profits and losses among subsidiaries of conglomerates, but the extent of ownership and interrelationship between corporations which are ostensibly unaffiliated.

Finally, because the data are unavailable, we are by no means certain of the impact of vertical integration and agglomeration on single-purpose businesses, whether agricultural, mercantile or manufacturing.

Agribigness

In agriculture, however, we do know that vertical integration and the entry of big business into agriculture have produced symptoms which smack of unfair trade practices--in many instances accelerating the demise of the small farm, drying up the farmer's credit, increasing his dependency on processors, decreasing his mobility and leverage on the market, increasing his debt burden without a concomitant growth of return on investment, and so on. A brief analysis of this impact on agricultural production is useful.

As this Committee well knows, equating bigness with efficiency in agriculture is a misconception. Studies have demonstrated the family farm to be the most efficient unit of agricultural production. Summarizing the studies made on the subject of farm efficiency, G. P. Madden concluded, "All of the economies of size could be achieved by modern and fully mechanized one-man or two-man farms.[1] The study concluded that the major difference between the small and medium-sized farm and the large farm was simply that the latter had the potential to produce more profits for the farm owner.

The issue for agriculture is less a question of farm size than it is the maintenance of market conditions which tend to assure a sufficient return on the farmer's investment and his labor. Costs, the availability of credit, and market leverage are more critical factors, yet they are to a great extent unrelated to actual or potential efficiency.

A review of these extrinsic factors unrelated to efficiency reveal that the family farmer is disadvantaged.

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[1] Size/efficiency relationships varied from crop to crop; however, with regard to the production of cling peaches, "average cost reached a minimum with an orchard size of 90 to 110 acres when mechanized practices were used." In the Imperial Valley, examination of vegetable farms having acreage which ranged higher than 2,400 acres disclosed that the farms under 640 acres "could produce almost as efficiently as any larger size." Producers of field crops such as cotton, alfalfa, milo and barley "were found to achieve lowest average cost at about 640 acres." The report found, in fact, that in these areas, larger farms extending beyond 1,280 acres "were slightly less efficient." Economies of Size in Farming, United States Department of Agriculture, Agricultural Economic Report No. 107 (1969).

Despite the fact that he bears all the risk of producing the food, must nurture the crop from year to year, often waiting for years before vines and trees reach maturity, too often he receives the least return of all components of the food delivery chain. For example, a 14-ounce bottle of ketchup, which costs the housewife about 30 cents, brings the farmer a little more than one penny. In contrast, the wholesaler, or middleman, who is a transient conduit between the farmer and the retailer, skims off as much as 40% of the price the consumer pays for market produce. Clerks in air-conditioned Safeway markets earn up to $5.00 an hour in parts of California, providing them with a greater return than the farmer receives for his labor, and three times the earnings of the farmworker. Consistent with the average farmer's deficient return on his investment, the farmworker's earnings average one-half the national industrial average.

There are those who would say that big business is the solution to the farm problem. In fact, the entry of big business into agriculture has caused much of the problem.

The poultry-and-egg industry, for example, has moved from production by small independent farmers into control by vertically-integrated national poultry-feed suppliers such as Ralston Purina. In 1961, a California legislative committee completed a report on vertical his family. The U. S. Department of Agriculture and the University of California exhorted poultrymen to get bigger:

> And poultrymen followed this advice. Profit margins kept shrinking, and it took more and more eggs from more and more chickens to supply the operator and his family with a living wage.[1]

Business-hungry feed mills, equipment producers, investors anxious to find tax-saving devices--all contributed to the over-production. Hatcheries burdened with over-production contracted with farmers to simply raise the chickens, supplying both feed and birds and paying the farmer a fixed amount per dozen eggs[2]--an amount that was insufficiently related to his costs of production. Under vertical integration, the farmers claimed, "the margins are so low you need to maintain a volume in order to stay in."[3] "The grower can't pay back his loans because of low prices, and the company, in order to make the investment bring in something, puts more chickens on the ranch, which depletes prices even further."[4]

Those farmers who resisted vertical integration became the victims of purchasers. Processors and wholesalers would keep the producers' price low, maximizing their profit on resale to retailers. Citing variations in the market unrelated to demand, they indicated that wholesalers "simply stated the price they wanted to pay . . . to force the poultryman out of business or into an integrated set-up." Wholesalers, they claimed, would stop buying when prices rose, forcing the prices down.[1]

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[1] *Ibid.*, p. 15.

[2] *Ibid.*, p. 16.

[3] *Ibid.*, p. 23.

[4] *Ibid.*, p. 25.

Time has not corrected the problem experienced by egg and poultry producers. A recent study[2] of egg production in Riverside County, California, which produces almost 12% of the nation's eggs, shows that producers are "getting 8 to 10 cents less per dozen eggs than it costs to produce them.

Tax-Loss Farming

The foregoing distillate of the transition from independent operator to external vertical integration in the poultry market presages the future for field and tree crops, and for meat production. Shrinking profits due to the manipulation of the market, and costs of production, over-production and tax-loss farming are now being employed by conglomerates seeking to eliminate the family farmer or make him a vassal of vertical integrators.

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[1] Ibid., p. 17.

[2] At the University of California, Riverside.

Consider, for example, the inevitable impact on the small farmer of the enormous increases in production unsupported by an increase in market demand, which will follow from the addition of 450,000 acres of newly-irrigated land on the west side of the San Joaquin Valley as a result of the California Water Project. Add the factor that much of this land is owned by corporate giants such as the Southern Pacific Railroad and Tenneco. Finally, consider that the water will be delivered to the area at the mere cost of transportation--a 90% discount--presenting an enormous subsidy to those who least need it.

The greatest incentive whioh conglomerates and syndicates have to enter agriculture stems not from the profit motive but rather from our convoluted federal tax laws. The conglomerate often realizes its gain from supplying machinery, equipment, feed and fertilizer at one end and processing and marketing the product at the other. The gains realized from these fields and from non-agriculturally-related affiliates are offset against a loss which it willingly sustains in agricultural production. The loss is minimized or turned into a gain by taking income tax credits against the profits derived in the other, non-agricultural, fields. But the family farmer engaged exclusively in agriculture has no offset. Since his competitor often sets the market price, he must sell his product at a loss or go out of business.

In addition to tax advantages, the conglomerates realize a gain simply from the anticipated appreciation of real estate. Last year, the largest item of increase of agricultural assets was the enhancement of real estate value--a growth of $6.3 billion. Since the value of land is increased only on sale, this enhancement of assets against which the corporation can borrow funds is still not taxable until the year in which it is sold. Therefore, the speculative value of holding land and the economic leverage resulting from an increase in asset value are further inducements to the corporation to invest in and utilize agricultural land.

Unfair Competition

The result of conglomerate entry into agriculture is that the single-activity farmer must compete against producers who not only corner the market through vertical integration, but produce at a loss, deriving the benefit not from profits on the sale of agricultural production, but rather from tax gains and land speculation.

Over-production, then extrinsic control of market and costs, and tax-loss farming, continue to force efficient family farmers out of agriculture. Many of those who remain will be tied by contracts to vertically-integrated conglomerates as mere vassais or, as one farmer put it, "hired hands."

Enormous industrialized farms will run for miles, interspersed with labor camps. Merchants in rural communities once surrounded by a higher density of farm owners, will lose some of their markets; the body politic of freeholders will shrink, and agricultural areas will be controlled by dominant land-owning corporations whose board members reside in distant cities.

Consumer interests could in the short run equate loss farming with lower prices, but the conclusion would be premature. Seventy-five percent of the increase in food prices in recent years is attributable to non-farm costs. Moreover, the recent disclosure that the monopoly conditions which prevail in the breakfast-food industry costs the consumer an estimated extra $200 million each year is an indication that the short-term gain is only a sugar-coated lemon.

Some conclusions can be reached regarding the trend toward vertical integration in agriculture, unwarranted as it is by economic considerations. There is a need to apply the principle of public trust to the affairs of our largest corporations in order to assure both that their conduct is known to those who will be affected by it, and that it is not patently inimical to the general welfare of the society. Laws encouraging unfair competition in agriculture should be modified to assure that the federal government help those in need rather than those who not only don't need help but who should themselves be helping others.

Public Trust Accountability

The duty of private landowners and major corporations to account publicly for their activities and to conduct their affairs in a fashion that is not inconsistent with the public good has its origins in the heritage of English common law. With respect to land ownership, all title to land emanated from the King as the representative of the State. In English law, the residual title that reposed in the State was memorialized in the related doctrines of escheat and forfeiture. If there were no heirs to which the land would pass, title returned to the State. Similarly, if the owner of the land breached certain obligations of loyalty to the State, the land was subject to forfeiture. As such, the notion that ownership is subject to overriding considerations of public good is not novel.

A second concept rooted in Anglo-American jurisprudence applicable to major corporations is the trust doctrine. Commercial enterprise is a privilege rather than a right, and should function consistent with the public interest. For this reason, many commercial activities are subject to licensure. A person who undertakes a task in behalf of another or performs a function affecting the interests of a class is a trustee for that group, and accountable to that group. He has the responsibility to fully disclose his actions, to provide assurance that his conduct is in fact in the interest of that group.

The notions of public trust and the duty to give an accounting are relevant to the conduct of the thousand largest corporations in the United States. A conglomerate whose aggregate sales represent one-tenth of one percent or more of the gross national product of the United States has a sufficiently substantial impact on the consumer, on commerce, on labor, on the cost of living--indeed, on the quality of life, the environment, the allocation of resources and so on--to justify the application of the public trust doctrine to the enterprise. Accountability and the duty to disclose transcend the necessity of full and complete disclosure related to the periodic sale of stock. It is, or should be, an ongoing responsibility based upon the year-to-year affairs of the enterprise and its continuing effect on the society.

The concept is already manifested in regulation of the banking industries in the United States. The insurance industry, for example, was the first industry subjected to affirmative regulation. It is unique because it is undertaken almost exclusively by the states, notwithstanding the interstate nature of the commercial activities of the industry. It is unique, also, in that the prospective contractual obligations of the insurance company, requiring continual solvency, have led the regulation of the industry to take on the quasi public trust analogy. The essence of insurance regulation is to impose on the company the duty of full disclosure of its financial affairs, including an annual audit undertaken by officials of state insurance departments. Investments by insurance companies are strictly regulated, and rates are subject to disapproval in the interest of the consumer and the solvency of the company.

The public trust doctrine is readily applicable to the thousand largest corporations in the United States. Legislation could be enacted determining that any business entity whose sales in the aggregate exceeded one-tenth of one percent of the gross national product would occupy a quasi public trust relationship to the United States. The duty to provide full public disclosure of its activities by way of accounting would be imposed upon the entity as a concomitant to its public trust relationship. As with the insurance, banking and communications industries, a licensure provision could be included as well. Operations would be subject to periodic audit by way of verification of the information provided annually on a voluntary basis, at the expense of the company.

Equal Opportunity for Family Farmers

Beyond the corporate duty of public disclosure, a number of specific steps should be taken by the federal government to restore equal competition for the family farmer.

1. Tax changes. Current tax laws which provide conglomerates with unfair tax advantages should be reviewed and modified to reduce the advantage deriving from land speculation and the competitive disadvantages experienced by persons earning the bulk of their income from agriculture alone.

a) Tax-loss farming could be minimized by prohibiting tax credits resulting from the setting off of losses in agriculture against profits earned by non-agricultural subsidiaries.

b) Speculation might be minimized by imposing a tax on increases in land values resulting from other than improvement of the land or increased economic value of the land attributable to increased earnings. The tax would be payable in the year in which the increase in value occurred.

Owners who directly or indirectly derived their substantial earnings from agricultural production would be exempted.

c) To further reduce speculation, net profit from the sale of land could be taxed as ordinary income. An inordinate tax occurring in the year of sale could be reduced by application of the income-averaging provisions.

2. Acreage limit and residency requirement. The existing laws establishing the small and medium-size farmer as the basic agricultural unit of production in America might be enforced--specifically, the law limiting the supply of water from federal reclamation projects to resident farmers owning 160 acres or less. Many farmers who have contracted to divest themselves of excess acreage have not as yet done so. A measure is now pending in Congress, in both the House and the Senate, which would enable the federal government to purchase land in excess of the 160-acre limitation. If enacted into law, the bill could both reduce the acreage of some landowners and at the same time provide for the reapportionment of prime agricultural acreage among small farmers and farmworkers desirous of moving up to farm ownership.

3. Family Farm Act. Recognizing the unfair business advantages which conglomerates derive through tax-loss farming

and land speculation, Congress should enact the Family Farm Act, which would altogether prohibit engagement in agricultural production by conglomerates or large, non-agriculturally-based enterprises. The significance of this bill would be to place farmers on an equal competitive footing.

4. Encourage co-ops. Small farmers can compete with large farmers efficiently, in the event that they are able to take advantage of economies of scale deriving from common purchasing, processing and even marketing. A program of technical assistance should be initiated, providing assistance to small farmers seeking to modernize plant and equipment, who have combined in cooperatives which show a capability of reducing costs and maximizing gain from sale of produce.

5. Farmworker farm ownership. A related program should be established to provide seed money and ongoing technical assistance to farmworkers seeking to take an ownership position in agriculture. The program might be integrated with related government projects, so that, for example, excess land purchased under the acreage limitation enforcement act would be leased to individual farmworkers who have formed agricultural cooperatives to take advantage of economies of scale resulting from cooperative purchasing, processing and marketing. The seed money program would

disparities between benefits accruing to industrial workers and to farmworkers, under present laws and economic conditions. Farmworker minimum wages could be increased to close the gap between the average farmworker hourly wage and the average industrial wage in America. Similarly, benefits such as unemployment insurance could be extended to the farm labor force.

9. Marketing leverage. Since agriculture meets a national market--fruits and vegetables can be air-freighted from one end of the country to the other in a matter of hours--the question of over-production and concomitant loss of income might be considered to be a national, rather than a regional, problem. Therefore, national marketing boards might be established to minimize unreasonable competition between farmers of competing regions. The marketing boards would function to restrict productivity to that which the market is likely to reasonably absorb, minimizing uneconomic surplusses which benefit neither farmers nor consumers, but only maximize profits of middlemen.

While the national marketing boards would be voluntary, special privileges, such as federal loan guarantees, might be made available to farmers participating in the marketing boards as an incentive to participation and to maximize their effectiveness.

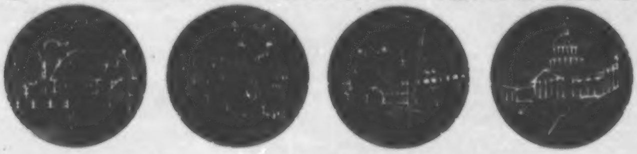
10. Collective bargaining with processors. Legislation compelling processors and middlemen to bargain collectively with farm associations would assure farmers a better price for their produce.

11. Zoning. Attention should be given, not to the solution of short-range pro lems, but to establishing a system which will also preserve and maximize the utilization of our limited natural resources for the future. To this end, Congress and the States should institute a system of agricultural zoning, beginning with a national survey of land resources and present utilization. The second phase of the survey would be to establish, based upon the climatological and soil conditions in each region, the most efficient uses to which the land might be put, in terms of specific agricultural, timber or mineral productivity. Next, agricultural economists would ascertain the most efficient units of production for the various uses to which land in the sector might be put. Finally, variable acreage limitations would be established for all agricultural uses benefiting from some form of federal or state assistance, such as subsidies, loans or services. These limitations would be non-restrictive and would, rather, impose flexible guidelines to assure the highest use of the land. If, for example, the optimum acreage for a farm best suited for

midwestern grain crops was 400 acres, farms in excess of 440 acres engaged in grain production would either be ineligible for public assistance such as government loans, or would pay a premium for such loans.

12. Progressive real property tax. A corollary to the variable acreage limitation and regional zoning program would be the imposition of a progressive real property tax, based upon value. The graduated property tax would tend to reduce the advantage deriving from land held for speculative purposes, and reduce the pressure for increased land values related purely to speculation rather than to increases in productivity-related income. It would also discourage the concentration of ownership of land and shift some of the burden for support of local and state functions from the homeowner to the commercial interests.

WHO WILL CONTROL U.S. AGRICULTURE?



policies affecting the organizational structure of U.S. agriculture

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WHO WILL CONTROL U.S. AGRICULTURE?

INTRODUCTION

The purpose of this publication is to describe the current situation and trends in U.S. agriculture, discuss the factors that will influence its future organization of production, and sketch some of the alternatives and consequences of selected courses of action and their effects upon producers, input suppliers, processors, and consumers.

When discussing the organization and control of U.S. agricultural production, a definition of agriculture as used here is in order. The term agriculture includes the production and marketing of food and fiber crops, livestock, and poultry. Although forest products are produced on many farms, the forest products industry is not specifically included.

Although processing and distribution of food and fiber commodities are sometimes included as part of modern agriculture, this publication uses the more restrictive definition just noted. However, it recognizes that vertically integrated companies may control organization of production on farms.

To include and analyze all the policies that affect organization and control of agriculture is a formidable task. This is partly so because research to help provide insights is far from adequate. In many cases policies that are in effect and the trends associated with these policies may appear as evidence but may be interpreted differently.

1. WHO CONTROLS AGRICULTURE NOW?—THE TRENDS UNDERWAY

Leonard R. Kyle, Michigan State University
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In this review, the authors spike the mental images of a uniform, stereotyped kind of farming in the U.S. by showing not only wide differences in size and gross production of farms (one-eighth of all farms produce almost two-thirds of sales), but in who farmers are and how control is exercised. Interesting IRS data reveal some "farmers" who are "affluent" but manage to lose money in farming. Large industrial corporations are still a minor influence, but a third of livestock and an eighth of crops are now produced under many kinds of forward contracts. Perhaps most weighty of all are the more intangible trends toward industrialization of the entire food and fiber system — a vertical merchandising-oriented structure in which conglomerate firms may well play an increasing role. Continued advances in farming technology add to the seeming relentlessness of trends in control of agriculture. The major concern expressed is that if agribusiness conglomerates gain control of production and marketing of a substantial portion of the food supply, they would probably be able to control prices and boost profits unless restrained by government action.

ONE OF THE KEY ISSUES in American agriculture today is "Who will control production and marketing of agricultural products?" Many are aware of the continuing decline in farm numbers and the increasing concentration of production on larger farms. They are also concerned that these large-scale production units, which are becoming more involved with integrated or contractual arrangements to market their products through industrialized "food systems" conglomerates, may some day approach the concentration of economic power now present in much of our industrial economy.

These developments could point to a future time, perhaps only two or three decades away, when sole proprietorships and the typical family scale farm units as they presently exist will have essentially vanished in the United States. Even so, many smaller part-time or part-income farms would continue to exist.

The concern among farmers and rural people about the changes that are taking place is increasingly evident. Many of the changes are not peculiar to agriculture but follow the patterns of change in the industrialized sectors of the economy. Gradually, science and technology, much of it supplied in prototype form by the land-grant universities and the United States Department of Agriculture, have made it possible for each farm worker to produce more. Output per hour of farm work has more than doubled since 1950. Some of this productivity gain is, however, rightly attributed to off-farm components of the agricultural industry.

Over time the farming units dominating commercial production have become larger. Even so, only 5 percent of America's farms are large enough to employ more than 18 months of hired labor per year and the family labor input per farm has remained relatively unchanged in the last decade.

An additional complexity of the farming sector is the increasing involvement of farm entrepreneurs with off-farm employment and investment activities. An increasing percentage of the owners of Census Class 3[1] and smaller farms, or their wives, are engaged in off-farm employment. With modern transportation and communications, it is becoming easier to combine the advantages of living on a small farm with working a 40-hour week in a nearby community. This is particularly true in the industrial areas of the eastern United States. The opportunities for off-farm employment are much fewer in the plains states and the Rocky Mountain areas. The eastern corn belt states are rapidly filling with industrial communities located less than thirty miles from many farm families. At the same time, many of the entrepreneurs of larger, more commercial farms are also involved with professional employment and investments outside of farming. This gradual demise of a "strictly farmer" class will be described in more detail later, but it seriously affects the crosscurrents of farm ownership and entrepreneurship in rural communities.

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[1] The economic classes of farms defined by the Bureau of Census are: Class 1, sales of $40,000 and over; Class 2, sales of $20,000 to $39,999; Class 3, sales of $10,000 to $19,999; Class 4, sales of $5,000 to $9,999; Class 5, sales of $2,500 to $4,999; Class 6, less than $2,500, part-time, part retirement, and abnormal.

Farming Widely Varied

Perhaps the most accurate attribute of farming is the increasingly divergent nature of the operating business units, among both the more commercial (generally over $20,000 in annual sales) and the numerous smaller, less commercial ones. For example, in 1967 the Internal Revenue Service reported about 3,591 farm units which had over $500,000 in farm business receipts *(11)*.[1] About 1,479 of these were sole proprietorships and the remainder were partnerships. Also, 15,115 of the largest units, grossing over $200,000, averaged $635,000 in sales. At the same time, over one and a half million individuals reporting farm income had farm receipts of under $5,000 and taxable incomes of under $1,000.

The number of tenant-operated farms is decreasing and the number of farms with part-owned and part-rented land is increasing. Entry into farming for young farmers is still possible if they are ready to accept a smaller farm and obtain only a part of their income from farming or become tenants, but it is relatively difficult if they try to accumulate the equity to acquire control of a strictly commercial Class 1 unit. Becoming a business partner with a relative is easier for some.

The larger, more successful commercial units are putting serious economic pressure on many of the smaller units, where the operator is trying to remain and, often, to become a "full-time" farmer. Some describe the emerging trends as agrarian cannibalism! The "adapt or die" concept was never more applicable than it is in farming today. Many efficient farms, with sales of over $100,000 annually, are owned and operated by a family unit of two members with up to 18 months of hired labor. *Thus the competitive pressure cannot be blamed entirely on large corporate units.*

What changes in technology, economic forces, governmental actions, and institutions helped to create the current situation and emerging trends? What actions can be taken to modify or negate the forces now in motion or to create new countervailing forces if this is the desired course of action? A final important question that still defies answering is "What, if anything, does the public want done?" The objective of this publication is to describe the current situation in farming, reflecting on the past and looking to the future, to better understand what is happening to control of agricultural production.

Changes in the Number and Size of Farms

Many of the institutions, traditions, and values relating to the farm sector of our economy were developed before World War II. In 1929, approximately six million farming units were identified by the Census of Agriculture. A high proportion of the production of most farm commodities came from relatively small farms that were owned or operated by a farmer and his family. The main exceptions were some plantations in the South and some large-scale "specialty crop" units in California.

Over time, the farming units dominating production have become larger and more commercial. Not only have production units grown in size, but many have been integrated with other stages of food and fiber marketing. Currently, many very large production units can only be described as industrialized units which bear little resemblance to firms producing the same product 40 years ago. Examples are today's cattle feedlots with over 20,000-head capacity or egg factories with one million birds. These units not only are much larger, in terms of production, but also use much more capital and less labor and land than their predecessors.

Note the changes in the concentration of agricultural production in Table 1.1 using data derived from the Census of Agriculture. In 1929, of those farms that were in Census Class 2 or larger, 1.2 percent of about six million census farms produced 14.9 percent of the output (adjusted to 1964 farm prices). However, it took all farms with product sales of $5,000 or more (Census Class 4 and larger) to provide 45.2 percent of the total output. Conversely, units producing under $5,000 of output still provided 54.8 percent of total farm sales. In very sharp contrast, in 1964 only 12.7 percent (those farms with over $20,000 sales) of the 3.16 million census commercial farms produced 64.4 percent of the value of total farm sales. It is estimated that 20.2 percent produced 75 percent of the sales value in 1970. Smaller units, 87.3 percent of the total, produced only 35.6 percent of total output.

Table 1.1 — Comparison of the Concentration of Number of Farms and Value of Products Sold, 1929 (Adjusted to 1964 Prices), 1964, 1969 and 1970[a]

1964 census class	Percent of total number			Percent of total sales		
	1929 adj.	1964	1969	1929 adj.	1964	1970
1, 2	1.2	12.7	20.2	14.9	64.4	75.8
3	2.7	14.8	14.5	12.4	19.2	14.9
4	7.9	16.0	14.3	17.9	10.6	5.4
5	23.8	14.1	16.7	30.0	4.7	1.9
6	64.4	42.5	34.3	24.8	1.1	2.0

[a] Calculations for 1929, 1964, and 1969 by Leonard R. Kyle based on U.S. Census of Agriculture. Data for 1970 calculated from projections by Rex F. Daly, J. A. Dempsey, and C. W. Cobb. *Farm Numbers and Size in the Future.* Pp. 314-332 in *Size, Structure, and Future of Farms.* Ed. by A. Gordon Ball and Earl D. Heady. Iowa State Univ. Press. 1972.

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[1] This and similar references are listed at the end of each chapter.

The concentration of production on the larger units is not uniform by type of farm or by area. In 1964 large-scale units with over $100,000 in sales, produced over 68 percent of the output in the States of California, Arizona, and Florida, while New Mexico and Colorado followed with 39 and 42 percent. In the Midwest and Northeast, large scale units were not so important (Fig. 1).

The size distribution of farms has both a historical background and a relationship to the type of crops and livestock products produced. Even in 1929, 20 percent of the production on vegetable and fruit and nut farms came from units that by current output standards would be in Census Class 1 farms (those with $40,000 or more in sales). But, by 1964, only 3,577 vegetable farms provided 81 percent of the production (Tables 1.2 and 1.3), and about 7,334 units producing other field crops (including potatoes, sugar beets, etc.) had over 74 percent of the output of farms of this type. It is expected that 1969 census data will show further concentration.[1]

The changes that have occurred for different types of farms, as classified by the census, are given in Tables 1.2 and 1.3. To date, tobacco, dairy, and cash-grain farms have shown less concentration in production. For example, in 1964, 23.9 percent of the total production of cash-grain farms came from Class 1 units. The figure for dairy farms is similar, but it is less for tobacco farms. Although the trend to concentration of production on the larger farms has not progressed as rapidly on cash-grain, dairy, and tobacco farms as it has on most other farms, it has progressed substantially.

A different data series shows the lack of concentration of beef cow-calf operations *(5)*. The average number of beef cows per farm in the United States was 26.3 in 1964. Even though some ranches are large-scale units with over 1,000 cows and it is easy to find herds with over 5,000 cows, the dominant unit is very small. In the eastern half of the country, beef-cow herds average less than 20 cows. These are supplementary enterprises developed to utilise otherwise wasted resources on crop-livestock farms or part-time farms.

The concentration in fed beef production is a sharp contrast to beef-calf production. On January 1, 1972, 58 percent of the fed cattle came from only 2,204 feedlots with a capacity of over 1,000 head. The other

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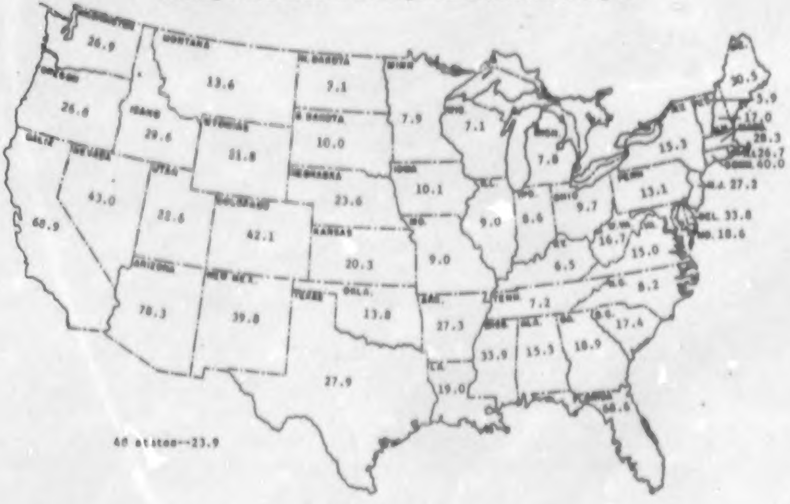
[1] Data by type of farm should be available in 1973.

Marketing by farms with $100,000 or more in gross sales as percentage of total marketing of all farms for the 48 contiguous states (1964 census). (Fig. 1)



MONTANA
N. DAKOTA
S. DAKOTA
IDAHO
WYOMING
NEVADA
UTAH
COLORADO
NEBRASKA
KANSAS
ARIZONA
NEW MEX.
OKLA.
TEXAS
IOWA
MO.
ARK.
OHIO
PENN.
TENN
DEL. 33.8
MD. 18.6
26.9
13.6
7.1
26.6
29.6
10.0
21.8
7.9
7.1
7.8
15.3
30.5
5.9
17.0
28.3
26.7
40.0
27.2
43.0
22.6
23.6
10.1
13.1
68.9
42.1
9.0
8.6
9.7
16.7
15.0
20.3
9.0
6.5
8.2
7.2
78.3
39.8
13.8
27.3
17.4
33.9
15.3
18.9
27.9
19.0
68.6
48 states--23.9

Table 1.2 — Number of Large Farm Firms by U.S. Farm Census Type and Size, 1929, 1959, and 1964

Type of farm	1929 large size[a]	1959 Class 1[b]	1964 Class 1[b]
Vegetable	785	2,730	3,577
Other field crop	699	4,011	7,334
Poultry	225	11,151	19,249
Fruit and nut	1,924	6,547	8,103
Miscellaneous	101	3,830	5,034
Ranch	1,829	6,757	5,921
Cotton	441	13,171	13,033
Livestock	453	29,439	35,116
General	50	4,775	8,783
Cash grain	486	10,828	19,301
Dairy	882	8,538	15,463
Tobacco	. . .	332	1,000
Total	7,875	102,109	141,914

[a] Farms with over $30,000 value of products sold in 1929, which is comparable to $48,600 in 1959 and $48,450 in 1964.

[b] Farms with over $40,000 in gross farm product sales as listed in the U.S. Census of Agriculture.

Table 1.3 — Concentration of Farm Production by U.S. Farm Census Type, Value of Products Sold, and Size, 1929, 1959, and 1964

Type of farm	1929 large size[a]	1959 Class 1[b]	1964 Class 1[b]
		percent of total production	
Vegetable	20.0	73.8	81.4
Other field crop	5.1	55.8	73.7
Poultry	3.3	53.4	67.9
Fruit and nut	19.9	45.1	67.6
Miscellaneous	1.0	62.1	65.4
Ranch	29.2	59.8	64.0
Cotton	1.4	46.8	55.2
Livestock	2.1	33.9	46.8
General	.2	20.7	33.6
Cash grain	1.8	16.7	23.9
Dairy	3.0	15.3	23.4
Tobacco		3.9	8.2
Total	5.0	32.8	43.7

[a] Farms with over $30,000 value of products sold in 1929, which is comparable to $48,600 in 1959 and $48,450 in 1964.

[b] Farms with over $40,000 in gross farm product sales as listed in the U.S. Census of Agriculture.

168,843 lots fed the remainder. The trend to large feedlots has been very rapid in recent years.

By 1970, the largest 223,000 farms in the United States (those with sales over $40,000) comprised only 7.6 percent of the 2.9 million total but controlled over 52.5 percent of the production of food and fiber *(9)*. If this trend continues, it is conceivable that within two or three decades 70 to 80 percent of total farm production could be concentrated on about 100,000 farms. Of what type and how large will these units be? What will be the capital investment required? How will farm commodities be marketed and prices established? Who will really control these production units? What farming opportunities will remain for the other (perhaps 1,500,000) less-than-commercial farms? These are questions that are uppermost in the minds of many people, particularly those closely allied with farming.

The Changing Nature of Farm Entrepreneurs

With the drastic decrease in the number of farms that dominate the major part of agricultural output, it is important to focus attention on who really owns, controls, and manages the larger units. Are they really bona fide, full-time farmers in the commonly accepted sense of 40 years ago?

Data from the Internal Revenue Service for 1966 (Table 1.4) help increase our understanding of the people involved in farming. About 3 million individuals reported farm income in 1966. Not all of these individuals were active farmers and not all farmers reported income. So there is some difference in the populations reported in the census and IRS data. Of those individuals reporting farm income to IRS, 90,000, or 3 percent, have been classed as "affluent." To be so classified, they had to have total taxable income of over $25,000 (for other specifications, see footnote to Table 1.4) *(8)*. These individuals were generally associated with larger farms (averaging almost $45,000 in cash farm receipts). Since less than one-third of this was net farm profit, the taxable farm income was considerably less than their average taxable income from nonfarm sources of $42,000. Half of this group reported income from wages averaging over $20,000 and 56 percent reported dividends averaging almost $15,000. Nearly a third of the group was involved in a nonfarm sole proprietorship or a partnership, and the average income from each of these sources was about $18,500 and $14,500 respectively.

Another 441,000 individuals, or 14 percent, were classed as "well off," usually having taxable incomes from $10,000 to $25,000. They had cash farm receipts averaging $19,240. Their average taxable off-farm income was $9,660, which was also higher than their taxable net farm profits. Perhaps about half of this group could realistically be classed as bona fide, full-time farmers without significant off-farm income.

The 531,000 individuals represented by these two groups apparently constitute most of the unincorporated entrepreneurs for the U.S. Census Class I and II farms. In 1970 U.S. Department of Agriculture estimated 597,000 Class I and II farms with over $20,000 in sales. *Yet, their dependence on farming as a source of income to pay for family living and to retire debts was overshadowed by their income from off-farm sources.* In fact, many strategically used their farming operations

Table 1.4 — Farm and Off-Farm Income Reported by Individuals to the Internal Revenue Service in 1966

Class	Average adjusted gross	Number	Percent of total	Percent with farm profits	Average farm receipts[a]	Off-farm income: Percent with wages	Off-farm income: Percent with dividends	Off-farm income: Average taxable income (all nonfarm sources)
Affluent	$41,390	90,000	3	39	$44,930	30	56	$42,242
Well off	12,940	441,000	14	61	19,240	67	23	9,755
Upper middle	6,340	1,088,000	36	55	10,040	72	9	5,019
Lower middle	3,320	751,000	24	69	8,590	54	7	2,062
Poor	1,260	673,000	23	87	5,460	25	4	516
All individuals	$ 6,460	3,043,000	100	66	$11,030	56	11	$ 3,102

[a] Usually less than one-third of farm receipts are net farm profit and classed as taxable income.

Source: (8). Reinsel classified individuals into five groups used in farm profits or losses and taxable income from all sources. The "wealthy" individuals had taxable income from all sources of over $25,000 and farm profits or losses more than $10,000. Those with farm losses over $10,000 could have any amount of taxable income from all sources. "Well off" individuals had income from all sources from $10,000 to $24,999 unless losses were in the $5,000 to $9,999 bracket.

to reduce their income tax liabilities and enhance their accumulation of wealth. Only 39 percent of the "affluent" group and 61 percent of the "well off" group reported farm profits to the Internal Revenue Service. Yet, 87 percent of the 673,000 "poor" individuals with much smaller farm operations reported farm profits.

Thus, Reinsel's reporting of IRS data (Table 1.4) provides a new dimension to the gradual demise of a strictly farming class of rural people. Sixty percent of the total, or more than 1.8 million individuals of upper-middle and lower-middle affluence reporting farm income in 1966 (groups C and D, Table 1.4), had modest farm operations averaging only about $10,000 and $8,600 in farm receipts respectively. These two groups averaged over $5,000 and $2,000 respectively in taxable income from nonfarm sources. And more than half of the individuals in these groups had wages from off-farm work that materially contributed to their total adjusted gross income for tax purposes.

In a real sense persons in the C and D groups are classed as farmers because they live on and often operate small noncommercial farms. The 673,000 individuals classed as poor may even more appropriately deserve a farmer classification than the upper-middle and lower-middle groups. They had very little income from nonfarm sources even though their farming operations were very small and their income was, in most cases, well below the poverty level.

Corporate Farms

Approximately 10,700 of the Census Class 1-4 farm units were estimated to be controlled by corporations in 1967 *(2)*. Though this estimate is rough, it lends some perspective to the total incidence of corporate farms. Some of these, perhaps 2,500, are very large, involve various types of nonfarm business ventures, and cannot be classed as family units. Though this number is relatively small, it should be remembered that in 1971 only 111 of the largest nonfarm industrial corporations, each with assets over $1 billion, controlled about 51 percent of the assets used in manufacturing in the United States *(4)*.

California's corporate farms warrant special mention because of the large number of units *(2)*. Many of these are vegetable, fruit, nut, and cotton farms. The average acres operated by corporate farms was 3,000 for wholly owned units, about 1,500 for rented operations, and 5,800 for part-owned, part-rented situations. Less than 1,700 farm corporations in 1968 had about 25 percent of total production from California's farms. Among these farm corporations, over 80 percent were involved in no activity except farming. This is a higher percentage than for any other state except Montana.

It is difficult to document the increased involvement of large publicly held corporations in agricultural production, but many believe this is occurring. The legislatures of several states have recently considered laws to restrict the involvement of corporations in agriculture because of intensive concerns of farmers. North Dakota has had a law that prohibits corporations from owning or operating farmland since 1932. However, nationwide no very effective curbs have yet been implemented.

Forward Contracting and Integrated Production

Some farmers fear the gradual increase of agricultural output marketed through forward contracts or integrated production operations. Others, such as milk producers and sugar beet growers, often do not realize that their output is marketed under a forward contract and may have been for many years. Contract and vertically integrated production increased slightly in the 10 years between 1960 and 1970 from an estimated 19 to 22 percent of total output *(7)*. This represents considerable variation by crop and type of livestock product. Currently an estimated 36.2 percent of the livestock and livestock products and only 14.3 percent of the crops are produced under contracts or integration. However, 100 percent of the sugar beets and sugar cane, 98 percent of the fluid milk, and 97 percent of the broilers are produced under prior commitments (Table 1.5). For sugar and milk, federal laws and regulations are very much a part of the system.

The methods used to contract for the sale of fluid milk are considered satisfactory by most dairy farmers, including the small ones. Many farmers, however, deplore the lack of freedom which exists for the farmer who produces broilers under contract. At least a part of the difference results from dairy producer cooperatives controlling the contractual arrangements for milk while large feed companies or other nonfarm firms control the contracting for broiler production. Thus, producers are considered to have a more effective voice, and greater entrepreneurial input, in setting the contract terms for milk than for broilers. As farm cooperatives get larger and more powerful, farmer members are concerned about their relationship to the marketing decisions made by the leaders.

In the last 10 years a considerable increase has taken place in prearranging the disposition of processing vegetables, fed cattle, eggs, and turkeys. The only farm commodities that showed a trend toward reduced contract production were dry beans and peas. In these cases, once production procedures were adequately standardized, little economic incentive remained for continued contracting. Wheat and feed grains are examples of farm commodities where little economic incentive for vertical integration or forward contracting has arisen to date.

Table 1.5 — Estimated Percentage of Output Produced Under Forward Contracts and Vertical Integration in 1960 and 1970

Commodity	1960	1970
Feed grains	.5	.6
Hay and forage	.3	.3
Food grains	3.0	2.5
Fresh vegetables	45.0	51.0
Processing vegetables	75.0	95.0
Dry beans and peas	36.0	2.0
Potatoes and sweetpotatoes	70.0	70.0
Citrus fruits	80.0	85.0
Other fruits and nuts	35.0	40.0
Sugar beets	100.0	100.0
Sugar cane	100.0	100.0
Other sugar crops	7.0	7.0
Cotton	8.0	12.0
Tobacco	4.0	4.0
Oil-bearing crops	1.4	1.5
Seed crops	80.3	80.5
Miscellaneous crops	6.0	6.0
Total crops[a]	**12.9**	**14.3**
Fed cattle	13.0	22.0
Sheep and lambs	4.0	10.0
Hogs	1.4	2.0
Fluid-grade milk	98.0	98.0
Manufacturing-grade milk	27.0	26.0
Eggs	15.0	40.0
Broilers	98.0	97.0
Turkeys	34.0	54.0
Miscellaneous	4.0	4.0
Total livestock[a]	**30.4**	**36.2**

[a] Individual items weighted by relative values.

Industrialization of Our Food and Fiber Systems

The rapid application of science and mechanization to most sectors of farming has been widely recognized. So has the increased incidence of vertical integration and contract production for some farm products. Less well recognized, however, has been (1) the recent industrialization of some sectors of agriculture via conglomerate integration and (2) the shift in emphasis throughout the distribution channel from marketing commodities to marketing food and related services. These developments, although still somewhat limited, have brought into some farming activities the full power of capital, technology, and business enterprise already present in other more highly industrialized sectors of the economy. They involve much more than mere contractual delivery of a farmer's product. The involvement of feed companies in the production of broilers and eggs is a recent example. Two components of this industrialization enumerated by Farrell *(3)* and by others are (1) the enormous expenditures made for product and service development and (2) the proliferation of brand-differentiated, advertised products, which are packaged in a wide range of forms and designed to capture the food dollar of affluent, convenience-seeking consumers.

The old simple concept of food as a staple, basic commodity and of a sovereign consumer with a clearly defined demand for food is being cast aside. Industry seeks to create consumer demand for differentiated products and then to tailor the marketing and production process accordingly. This is a process that has been used effectively in the production and marketing of automobiles, television sets, and numerous other consumer items.

Clearly not all farm products lend themselves to this system of industrialized production and marketing. However, the appearance on the scene of a number of firms interested in selling a line of foods and related services suggests that some farm production units will or could be absorbed into large industrialized units in varying degrees. Current developments in confinement hog raising and sow leasing are causing some observers to predict potentially drastic structural changes in hog production in the future. Changes in product or processing may also influence concentration.

Food Manufacturing and Distribution

Increased concentration in food manufacturing and distribution by large, often highly integrated firms can be expected to further increase the size of farms. This results from the food firms trying to minimize the costs and inconvenience by buying and assembling farm products in the large volume lots that they require and by controlling quality tightly.

The total number of food manufacturing plants has dropped from 42,000 in the early 1950's to fewer than 27,000. In the flour milling industry alone, the number was halved during the 1950's and 1960's, so that now fewer than 540 mills are still in business. In 1965, the 31 largest firms had more than 40 percent of the total milling capacity in the United States.

Plants processing poultry have also declined in number and become larger in size. The number of federally inspected plants fell approximately 15 percent between 1964 and 1970. However, the number of large plants — those processing 30 million or more pounds of poultry a year — about doubled. They now account for nearly 80 percent of the total output of all federally inspected plants.

Merchant food wholesalers have doubled sales per establishment since the early 1950's. The number of establishments decreased only slightly, partly because many have been needed to supply the requirements of the booming institutional food market. However, wholesale functions are more and more being integrated with retailing. Four out of five firms in the supermarket industry have their own central warehouses or else are affiliated with a retailer-owned cooperative or a wholesaler-sponsored voluntary chain.

These firms dominate retail sales. To illustrate, over three-fourths of all grocery store sales are currently rung up in supermarkets (defined as having annual sales of $500,000 and up). Numerically, they increased from over 33,000 in 1960, to over 38,000 last year. The number of "small" grocery stores — those with sales of less than $100,000 — fell sharply. In 1970, only 113,000 remained out of a total of 168,000 in 1960 *(10)*.

Who Benefits From Larger Farms and Improved Technology?

For years farm management economists have debated how large a farm should be to achieve the greatest efficiency. Until recently, the research evidence seemed to favor operations of modest size that could easily be handled by a farmer and his family. The persistent trend to larger units, some of which are very large and still financially successful, is causing a re-evaluation of the potential for large scale and industrialized units.

Conclusions from recent research support the view that units as large as 5,000 acres can be successful in the Corn Belt, but that well-managed two-man cash-grain units of 1,000 to 1,200 acres will be competitive for some time to come. Two-man livestock farms with 600 to 800 acres will also have considerable staying power *(6)*. Yet, how many farms in the Corn Belt are this large? How many farmers in the Corn Belt can achieve a goal of even 600 crop acres in the near future? Nearly half of the current units would need to vanish from crop production for this to happen. With the potential for combining farm and off-farm activities, many part-income units will remain competitive and a wide range in size and organization of farm units can be expected for a long time.

The prospects for the concentration of most of our agricultural output on from 100,000 to 200,000 commercial farm units depend on the continued adoption of new technology. Since 1930, the public appropriations for the purpose of developing new knowledge and extending it free of direct charge to farmers have almost doubled in each decade. In recent years, private businesses have also added large investments in the research and development of the inputs needed for agricultural production or in related processing, marketing, and distribution. The investments in and the flow of new technology to agriculture are expected to continue as farm labor and productive cropland increase in economic scarcity.

The real cost of food to the American consumer has declined by half or more since 1929. This has occurred because wage rates in nonfarm industries have quadrupled between 1929 and 1970 while the prices of farm products less than doubled during the same period. The explanation for this is the competitive nature of the agricultural sector which rests firmly on technological advance *(1)*.

A big concern about the future adoption of new technology apparently relates to the potential competition among the early adopters, many of whom will operate large-scale units. Since the early adopters of technology are usually the people or firms who obtain the greatest benefits and the length of time for the adoption of new technology is decreasing, competition among early adopters may speed up. If the new technology fails, there may be a survival problem for early adopters who are not well financed. Large-scale conglomerate corporations would probably have more ability to withstand such losses. Also, wealthy farm entrepreneurs with ample off-farm income can overcome losses better than a farmer who is entirely dependent on farm income.

If large agribusiness conglomerates gain control of the production and marketing of a substantial portion of the food supply, it is assumed they will use techniques that *are far from perfectly competitive. In fact, they may operate more like the large corporations that now control much of the industrial wealth in the United States. With extensive control, these units would be able to regulate prices and boost profits unless they are restrained by the actions of government.*

Government Programs

Government policies have affected U.S. agricultural development since the early days of the nation. In the 18th and 19th centuries government policy for agriculture centered around the acquisition and distribution of land in the public domain. Land grants to railroads stimulated railroad building and facilitated the transportation of agricultural products. The Homestead Act opened a broad expanse of agricultural land to people with a minimum of capital. It also was a major determinant of farm size and organization for a long period. By the end of the 19th century, policies gradually shifted to those aimed at conservation of land and other natural resources, improving the availability of credit for farmers and building institutions for agricultural education and research. After World War I, political action to assist farmers through implementation of price supports began to emerge as the major farm policy thrust. The Agricultural Marketing Act of 1929 created the Federal Farm Board and the first direct efforts of government to influence farm prices. The Federal Farm Board's efforts did not, however, prove successful. Failure can be attributed to several factors including the general depression of the 1930's and a lack of effective methods to limit production in line with effective demand. But the experience gained through this effort stimulated efforts to write a new farm law.

The Agricultural Adjustment Act of 1933 provided for production adjustment through limiting production. After it was declared unconstitutional, it was replaced by the Soil Conservation and Domestic Allotment Act of 1936 and then the Agricultural Adjustment Act of 1938. Amendments and additions to these acts have been made generally every three to five years. As a result, agriculture has been under some type of farm commodity income support program since the 1930's.

The budget for the U.S. Department of Agriculture in recent years has included programs for the benefit of both farmers and consumers. The largest single portion of the budget has been allocated to income support programs. In addition, programs in credit, conservation, research, and services and Public Law 480 provide direct or indirect benefits to farmers (Table 1.6).

Table 1.6 — U.S. Department of Agriculture Budget for the 1971 Fiscal Year

General purpose	Million dollars	Percent
Income support	3,702.4	46
Credit	670.4	8
Conservation	455.8	6
Research and services	582.9	7
Consumer food services	1,976.9	24
Public Law 480	702.5	9
Total	8,090.9	100

Since 1960, direct income payments have risen along with the total federal budget for agriculture. Feed grain, wheat, and cotton program payments in 1970 made up about 89 percent of all government payments to farmers *(9)*. In the 1971 fiscal year, these programs accounted for about 46 percent of the total USDA budget. High expenditures for these programs have resulted in a proportionately high distribution of payments to those states and those producers where feed grains, wheat, and cotton are important and constitute a major part of the agricultural production.

In 1970, direct payments totaled $3.72 billion. In the same year, these payments were equal to 23.7 percent of U.S. realized net farm income.[4] Since some costs were involved, these payments resulted in additional net farm income of something over $3.4 billion. These payments varied largely in proportion to the size of individual farm operations and volume of sales (Table 1.7).

As a result of price support programs that tie benefits directly to farm size, larger farms have received much larger benefits than small farms. For example, in 1970, 7.6 percent of all farms (those with over $40,000 gross sales) received 30.4 percent of all payments.

Effect of Government Programs

Have government programs encouraged formation of larger units? This is a very debatable question. Most programs, whether price support, land retirement, or direct payments, essentially base both performance requirements and rewards (price and income) upon past history for individual units. Also, most programs attempt to perpetuate certain past relationships among tenants and owners as long as tenants remain on the land. They have not protected against loss of access by tenants and, except for sugar crops, have had no protection for wage labor. *Consequently government programs do not of themselves materially alter the previous income relationships among farmers of various types and sizes. Presumably incomes are raised in a more or less uniform percentage for all farms.*

There are, of course, exceptions. At various times smaller farms have been given a relative advantage

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[4] If payments are excluded as part of realized net income, then they are equal to 30 percent of the realized net.

Table 1.7 — U.S. Farm Income Distribution by Sales Classes, 1970

	Farms with sales of						All farms
	$40,000 and more	$20,000 to 39,999	$10,000 to 19,999	$5,000 to 9,999	$2,500 to 4,999	Less than $2,500	
Number of farms (thousands)	223	374	513	370	260	1,184	2,924
Distribution (percent)	7.6	12.8	17.5	12.7	8.9	40.5	100
Cash receipts (percent distribution)	52.5	21.4	15.6	5.8	2.1	2.6	100
Average realized gross income per farm	$126,812	$32,096	$17,450	$9,324	$5,199	$2,148	$19,350
Average realized net income per farm[a]	$ 25,664	$ 9,962	$ 6,208	$3,492	$2,049	$1,059	$ 5,374
Average off-farm income per farm operator family	$ 5,803	$ 3,503	$ 3,452	$4,984	$5,465	$7,954	$ 5,833
Average direct government payments per farm	$ 5,067	$ 2,527	$ 1,715	$ 916	$ 592	$ 227	$ 1,271
Direct government payments (percent distribution)	30.4	25.5	23.7	9.1	4.1	7.2	100

[a] Includes government payments.
Source: (9).

through minimum allotments or upward factoring of payment rates and more liberal rules for land retirement. On the other hand, in the 1970 Act most of these concessions, except for cotton farms, were eliminated. Instead, a limit of $55,000 was placed on payments that large farms could receive. This limit has, however, generally been regarded as ineffective.

At the least then, history-based programs were not intended to, nor did they provide a major differential income advantage to smaller farms. That their net effect has been to give a positive net long-run differential advantage to larger farms is an often advanced conclusion. The evidence appears to support it. *Several important reasons for believing that price and income programs speed the trend to concentrated holdings are (1) wealthy investors, either farm or off-farm, presumably are highly responsive to protected income, (2) the stability of income promised by programs may provide improved access to big capital markets, and (3) small farmers have difficulty accumulating capital for expansion even with commodity price supports.*

A second line of reasoning is an almost ironic counterpart of the previous ones. Part of the staying power of the traditional farmer has been his willingness to accept a substandard income. As incomes are lifted to near equivalent levels with nonfarmers by government programs, farmers lose the protection they had with lower earnings.

Some side effects may also favor larger farms. If larger farms are undermanned and underequipped, land-retirement programs are very attractive. If smaller full-time farms are overcapitalized, they find land retirement onerous. Also, the nonfarmer who can "farm" the program through land ownership finds land retirement more attractive than the full-time operating farmer who cannot buy or rent more land.

A number of factors have been responsible for increases in the number of large farms and it is difficult to specify the extent to which government programs have been a contributing factor. *Overall, however, with the exception of tobacco farms and perhaps other limited situations, the impact of government payments has been to help finance the growth to large operations for many farmers. At the same time programs have provided income stability and adjustment assistance to some farmers who have chosen not to increase the size of their farm operations or who were unable to do so.*

Commercial Farms in Perspective

There is a tendency for some people to think in terms of commercial farms as being all there is to farming. Yet, in reality there are approximately six units with under $20,000 in sales for every unit with over $20,000 in sales.

Each year there are more rural residents who are farming and also working full time off the farm. This is particularly true near metropolitan industrial areas. These people prefer to live in a rural area and engage in small agricultural operations without any intention of becoming full-time farmers. Also, there are many small farmers who are semiretired and use the farm to keep busy. USDA estimates show that two out of three American farmers receive over half of their annual income from off-farm sources. The off-farm income of farm operators doubled in a decade, rising from $8.5 billion in 1960 to $17 billion in 1970, when it exceeded net farm income for the first time *(9)*.

Very sizable land resources will continue to be used for noncommercial farms regardless of what happens to the concentration in commercial agriculture. Much of the production from these units will be for home consumption or local use, but as long as markets are accessible, some production will also enter into the industrialized food system.

Very few logical reasons can be used to predict that the forces now in motion in agriculture will subside in the near future unless major changes are made. In fact, a few scientists believe that new technology in farming will be adopted at an even faster rate in the next two decades. Most of these new developments, like many in the past, will result in larger farms and require more capital and more sophisticated management. As all of these forces converge, it will become even more difficult for an individual entrepreneur to become established and compete successfully in *commercial* farming. The managerial skills and equity capital requirements will be too great.

Some family-owned partnerships and corporations and a limited number of sole proprietorships will be able to control the resources needed to organize an efficient farm business operation for some time to come. However, the problems of settling estates where large amounts of capital and high estate taxes are involved and the inability of some families to work together in solving the intergeneration transfer of farm units will gradually work to the advantage of larger-scale, less family-oriented, entrepreneurial control of agricultural output. The forces imposed from the processing, marketing, and distribution sector will also enhance this trend. This is particularly true for those farm commodities that can become an important component of an integrated food production and market service system.

The future for many part-time and part-income farms with sales under $20,000 will remain good as long as their production has access to markets that are reasonably equitable. Stability in their nonfarm income will be very important to them. So the diversity in the size and structure of operating farm units of all sizes will continue for a long time.

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2. ISSUES IN CONCENTRATION VERSUS DISPERSION

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Questions affecting a policy choice between a concentrated versus dispersed farming system are not new. Criteria for the choice begin with the ideals, values, and goals of all who are affected — farm operators, tenants and laborers, marketers, and consumers. The authors test the two systems against these criteria while reminding that other, intermediate systems also are possible. Further, any preference for dispersed farming does not exonerate that system from its faults or excuse it from all need to change. Overall, purely economic factors in the policy choice are not more important than "our ideas of the kind of world we want to live in."

The ultimate value of a free economy is not production, but freedom, and freedom comes not at a profit, but a cost.

— Henry Wallich

Had it been merely the liberal spirit alone which inspired the American farmer to become capitalistically oriented . . . the difficulties he encountered would have been greater than they were. But where land was abundant and the voyage to the New World itself a claim to independence, the spirit which repudiated peasantry and tenantry flourished with remarkable ease.

— Louis Hartz

EACH GENERATION exaggerates its own place in history. It sees its accomplishments as original, its problems as unusual. United States agriculture today is no exception. It overexalts its achievements and overrebukes itself for its deficiencies. It overstates its problems as new and unprecedented.

A pressing policy problem for the foreseeable future is how farm production and marketing is to be organized and who is going to control it. Thrust upon us after 40 years of preoccupation with acreage controls and price supports, this organizational issue appears strange and new. It is not new at all; it is ancient.

From the time primitive man divided the tasks in providing food and skins until the day of modern commercial farming, the organizational system has been a subject of deep importance to farmers. Also, it is important to those associated with farm production or marketing, and to those dependent on it for sustenance — that is, to everyone.

Historically farming has been organized in many ways and it is organized differently in various parts of the world today. Farms range from the minifundia to the semifeudal estates in Latin America and from the scattered hereditary private plots of western Europe to large corporate farms of the western United States and the large state farms of the Soviet Union.

In most of the United States a single kind of organizational system has prevailed. Best known as the family farm, it is more accurately designated as a small-unit proprietorship. The term used in this publication is a "dispersed" or traditional system of farm production and marketing, which contrasts with its extreme opposite, a "concentrated" system. By using the general term of dispersed farming, we avoid being bound to a particular system of the past or present.

The policy question is not whether things will be kept just as they are; it is neither desirable nor possible to do so. Rather the basic question is whether some version of a dispersed farm production and marketing organization is to prevail or whether the control of U.S. farm production and marketing will be concentrated in a relatively small number of large firms. A key word is *control.* It has little relation to the form or location of operating units. In a dispersed farming system decision-making power is dispersed. In a concentrated system the control rests in a few hands. Also, the issue involves the degree of dispersion or concentration that will develop.

The opening chapter sketched some current developments in U.S. farming. This chapter will outline some of the criteria by which policy should be considered, name some of the causal forces that account for the trends, and list a few alternatives and some consequences to various segments of society.

The criteria particularly concern the values and goals that ought to enter into policy decisions of such vital importance.

Values and Goals

First we consider the desires, the ideals, the values, and the goals of persons affected by the future organization of farm production and marketing. What indeed are the aspirations of farmers? This includes not only the owner-operators, but also the tenants and the wage workers. In addition, what do suppliers and marketers expect? What does the consuming public ask? Is there any common ground among the groups named above? Do all hold the same values and share similar goals? Although unanimity is neither necessary nor possible, a consensus must exist.

Operating Farmers

Attitudes and aspirations of operating farmers, whether part or full owners, have been pulse-counted often *(1, 3, 4, 5, 6, 7)*. The findings are mixed; not only do individual farmers disagree but many persons are inconsistent in their viewpoints.

The following points probably approximate the findings of most farmer-attitude studies.

- Farmers eagerly seek new technology or are technologically progressive. No longer are most farmers hidebound as to practices in production.
- Farmers are willing to go into debt. The older intense resistance to indebtedness has waned. However, this has not extended to acceptance of permanent heavy indebtedness on land. Farmers aspire to a sizable equity in land. This has become harder to achieve.
- Farmers are of mixed mind about assuming high risk versus entering into either contractual arrangements or governmental programs to reduce uncertainty. Generally, however, as farming risks increase, farmers are more willing to accept measures to reduce them.
- The vast majority of farmers declare they prefer to remain independent proprietors buying and selling in the open market, rather than enter into production contracts. This has not stopped the steady growth of contracting in various products.
- In principle farmers favor, or at least accept, the benefits of group action, as in cooperatives or bargaining. On the other hand, they are reluctant to become involved in it. This contradiction is reported by several studies showing that farmers approve collective action in marketing and pricing but are unwilling individually to join in it.
- Farmers want financial security for themselves, particularly for their retirement years, but hesitate to grant equivalent protections to hired farm workers, as by social security, unemployment insurance, workmen's compensation, or unionization. Farmers tend to take a paternalistic view toward hired workers.
- Farmers have a genuine love of the land, a respect for it, and a desire to protect and preserve it. This attitude is not mercenary; it has roots that are almost religious. It extends to an acceptance of measures relating to what is now called "ecology," which includes the older idea of conservation but extends beyond it to environmental protection and preservation.
- Farmers' attitudes toward earning an acceptable income, to which they of course give much emphasis, may be put in terms of their favoring "commutative justice" while objecting to the principle of "distributive justice." These terms describe two different concepts of social justice that are derived from the ancient Greeks. Commutative justice refers to equality in private relationships. Distributive justice calls for more direct action to share wealth and income. It justifies policies to give direct help to persons suffering low incomes. Farmers generally accept the principle of distributive justice only for handicapped persons, the elderly, and similar disadvantaged groups and others with whom they are personally acquainted or can personally identify.

Among examples of commutative justice, farmers have supported measures to bring honesty and fair trading in marketing, and even to seek price parity for farm products. They have hesitated to accept income redistribution through direct treasury payments, a form of distributive justice. When direct payments gained wider use in farm programs they were made more acceptable by cloaking them under the concept of land rental, which classifies as commutative justice. In reality, only a portion of direct payments pays for voluntary retirement of land and thereby conforms to commutative justice. The remainder is income supplement and fits the idea of distributive justice.

Tenants

Traditionally, the farm tenant has been regarded as a potential owner trying to accumulate enough capital to climb the agricultural ladder. As land becomes scarcer and more costly, the ladder becomes harder to climb.

Little evidence is available as to tenants' hopes and plans. Some want to buy land for a base of operations. Others find it more promising to put their funds into operating capital and into education for their children, as they till ever larger acreages rented from as many as five or six or even more landlords.

The relationships with landlords involving farm program rules, security, income, and level of living are presumably of primary importance to career tenants. With regard to technology, risk, group action, and attitude toward land, tenants probably hold many of the same values as owner-operators.

Hired Farm Workers

Some workers are neighbors or other farmers with few alternatives who are "helping out," but there also is a hired labor class. The hired farm labor group ranges from permanent skilled labor as on large dairy farms to temporary seasonal labor with little attachment to agriculture.

The interests of these hired persons appear to be identical with those of industrial labor: wage rates, working conditions, stability of employment, and fringe benefits including workmen's compensation, unemployment compensation, health insurance, and social security. More farm workers are turning toward the union form of organization as a vehicle to express and press their wishes.

Marketers

Firms that buy from farmers are usually margin-takers and are affected more by the volume of business done than by the price level of farm products. They want the volume large. Marketers have frequently opposed programs by which farmers might limit their output.

Market firms are concerned not only with the price and volume of farm products available to them but also with the dependability of timing and quality — the more so as they become part of the "industrialization" of the food and fiber industry referred to in Chapter 1.

Input Suppliers

Suppliers of inputs, like market firms, are usually margin-takers and therefore emphasize a large volume of business. In contrast to marketers, however, the input suppliers usually show more concern for farmers' incomes because they know that farmers buy more fertilizer, tractors, and other production inputs when their incomes are favorable.

Input suppliers, particularly of products such as feed and fertilizer, find it advantageous to establish secure outlets. They resist both sharp fluctuations in volume and a high cost of selling. These objectives explain why they sometimes seek contractual outlets.

Agribusiness firms located in rural areas, both marketers and suppliers, appear to feel a closer tie to farm affairs than do those farther removed.

The Consuming Public

The public at large, which both consumes farm products and finances farm programs through its taxes, has much at stake. *U.S. consumers have recently declared their wishes with some emphasis. Wholesome, nutritious, safe food at a moderately low cost seems to be their major objective.*

Nevertheless, it is unfair to charge consumers with purely sectarian or selfish attitudes. They frequently express concern for long-term goals such as conservation of land, and respect farmers' aspirations for both acceptable income and proprietary status. Consumer protests over high food prices have been directed almost exclusively toward processors and retailers and not toward farmers. Farmers enjoy considerable good will among the consuming public.

Dispersion Versus Concentration

Features of Dispersed Farming

A dispersed system of farm production and marketing by definition has many proprietary units. On each unit the operator combines in himself two or more economic roles such as laborer, manager, capital supplier, and often a landholder. The proprietary status of farmers in a dispersed system is usually related closely to an open market system. This does not rule out all contractual marketing, but it excludes contractual arrangements that seriously compromise the managerial independence of the farmer.[1]

A dispersed system of farm production and marketing does not as a general rule result in sharply divided economic-social classes for those who work the land, for those who manage it, and for those who own it. This is an important feature.

A dispersed system puts little if any economic power in the hands of each farm or farmer. The farmer can manage his own resources as he sees fit, but he possesses no economic power beyond his farm gate. This is a basic characteristic.

This definition is more general than precise. It does not rule out all absentee landlords and it allows for some hired labor. But it excludes concentrated power. It fits the kind of farming that has prevailed in the North and East and in part, but not all, of the South and West. Typically most landlords have been closely involved with farming, often being retired farmers or farmers' widows.

In the U.S. this kind of farming came into being rather readily. During the first 150 years of our national existence land was abundant. Land disposal policies of the government encouraged small holdings by many people. But the system was also adopted because farmers wanted it and because the public — which always holds a potential veto power over policies for agriculture — either favored it or acquiesced in it. Further adding to dispersed landholding was the wish of many persons to keep a tract of land as a hedge against inflation.

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[1] A more complete definition is: "1) Land is privately owned and cultivated. 2) Much of the land is owned by persons within agriculture, rather than by a nonfarm propertied class. 3) The individual proprietor is manager and laborer and provides most or all of his operating capital; he may also own his land. 4) Consistent with 3), the individual proprietorship is comparatively small. 5) The farm buys its supplies and sells its products in market exchange." *(2, pp. 60-61.)*

In no sense is the form or organization of farming purely economic in nature — it has social and political connotations as well. Historically, the men who tilled the soil and tended the herds were sometimes subservient — slaves, bondsmen, and serfs. Even today farmers voice their concerns in the language of their opportunities, occupational status, security, independence, freedom.

The kind of dispersed organizational system that has survived has not done so unaided. On the contrary, it has benefited from much national policy undertaken in its behalf. Measures have included public support for research and dissemination of new technology, an agricultural credit system, a subsidized transportation system, land-use policies, authority for farmers to work together in cooperatives and associations for purchasing, marketing or bargaining purposes, supporting incomes to farmers by means of price support or acreage control programs, and others.

Assessing the effectiveness of these measures is less important than recognizing that a choice of an organizational structure has historically been a public policy matter. It will probably continue to be so in the future.

Features of a Concentrated Agriculture

U.S. farming is being transformed into a new and strange pattern. (See Chapter 1.) Some farms have grown to a size that exceeds the dispersed system for farm production and marketing. More often, large nonfarm interests have moved into ownership or control of farm production. The overall term for a system of farm production and marketing controlled by a relatively few firms is a "concentrated" system.

A concentrated organizational system would typically include both farming operations and firms that formerly supplied inputs or marketed products in a single management complex. Each such complex would establish a "systems approach" to its internal management. This is the opposite of the open market system that in the past generated price signals to guide each stage of farm production and marketing.

Concentration, like dispersion, can take several forms. A concentrated organizational system could consist of huge industrial corporate "horizontally structured" farms. Or it could take the form of contractual integration dominated by agribusiness "vertically structured" firms. A concentrated system would leave little room for the proprietary owner-operated farm of the dispersed system. A few such farms might operate in fringe areas, as those near cities that sell directly to small stores or consumers.

Any kind of concentrated farming would differ from a dispersed system — differ for producers, for firms supplying production inputs, for firms marketing and processing products, for rural communities, and for consumers.

Both the corporate-farm and contractual versions of a concentrated farm production and marketing system are described more fully in Chapter 4.

A Range of Choices

Various intermediate systems can be found between dispersed and concentrated systems of farm production and marketing. These depend heavily on some form of group action by farmers or on government programs. The total range of choices — dispersion, concentration, and intermediate — can be classified as follows:

1. Dispersion of control
    a. Open markets
    b. Variations upon open markets
2. Intermediate systems
    a. Group control
        (1) Cooperatives
        (2) Bargaining
    b. Government involvement
        (1) Marketing orders
        (2) Marketing boards
3. Concentrated control
    a. Horizontally structured
    b. Vertically structured

Origin of Pressures for Change

If issues concerning the organizational system for farm production and marketing are as old as the process of getting food from land, why have they suddenly exploded upon the U.S. farm policy scene? Why is the traditional dispersed organizational system changing? There are at least six reasons:

1. The increasing technical complexity of farming. Farming is more complex than before in the knowledge and skills required of each farmer, especially those of a technical nature. It is more complex with regard to the resources, including financing, that must be employed on an economic unit — many of them obtained from industrial sources.

Some critics feel farming will be manned by specialists — one person a technician, another a manager, and several working as laborers — with financing (and risk-bearing) provided almost entirely from nonagricultural sources.

Within the traditional dispersed farming system, increased complexity in production has led to shifting to more commodity specialization, to drawing on specialized sources of technical knowledge, to "buying" such knowledge along with purchased inputs, to using cooperatives to help meet financial needs, and to relying on government programs for protection against price and weather risks. Questions arise as to whether these or other actions can adequately meet the needs that technical complexity brings about.

The other response has been to move toward a new, concentrated organization of farm production and marketing.

2. *The persistent pressure and tendency to take advantage of volume operations.* If net unit margins may be widened through volume discount buying of inputs or volume selling, the incentive to expand volume is very strong. The pressure to increase total net income in this way is widely felt.

This is different from the question of how large a farm should be to achieve highest efficiency. Maximum operating efficiency has generally been reached with modest two- or three-man units. These units can have substantial "staying power" in competition with more concentrated systems if the survival test be confined to operating efficiency.

The higher net incomes from volume output have played a role in the increasing size of dispersed farm operations. If an individual farm is big enough to influence the terms of procuring its inputs including hired labor, or for marketing its products, it can command favorable differentials. For example, access to low-wage labor can make a large farm appear profitable, but this does not prove that it is more efficient than the two- or three-man farm.

Likewise, advantages from large volume are important in the development of industrialized and concentrated systems of farm production for certain enterprises in some regions. Concentrated systems particularly gain where financing and tax advantages are realized by combining farm and nonfarming activities (see item 4 below).

3. *The scarcity of highly productive farmland coupled with growing needs for land for purposes other than farming.* A major effect is to make land ownership attractive as a speculative investment and as a hedge against inflation.

Of the four resources of production, only land is relatively fixed in its supply. Until two generations ago, we had a frontier of unoccupied land. This is no longer true. Even though technology expands the land's productivity, land is scarce and becoming scarcer. It is increasingly difficult to retain a strong foothold on the land resource.

4. *Closely related to land scarcity are the effects of tax laws.* The rules make it relatively easy for nonfarm investors to outbid farmers for land. It is ironic that several of the tax rules were sought by farmers but have been more helpful to nonfarm investors. The Tax Reform Act of 1969 closed a few loopholes and reduced some attractions to nonfarm investors, but by no means ended all of them. (See Chapter 6 for further discussion.)

5. *Minority position of farmers.* Cultivators and herdsmen have never before been so widely outnumbered by others in the economic system. In the U.S., 5 percent of the population lives on farms, 4 percent is gainfully employed in farming, and 3 percent of the Gross National Product is credited to farm production.

Within the food and fiber system, Shaffer *(8)* estimates the efforts and investments of operating farmers contribute only 15 percent of the final retail value of output. The rest goes to suppliers of purchased inputs and to the marketing system.

Their minority status makes it more difficult for farmers to retain their identity in the midst of so big a nonfarm world.

6. *Pressure put upon farmers to become a subsidiary unit in large business organizations that are often built upon merchandising strategy.* This force affecting the organization of farming may be the least familiar, at least to farmers, yet the most powerful. Most of the pressure toward a concentrated farming does not originate internally. It usually comes from outside sources.

Pursuit of power is a driving force in all economies. The center of power has changed from time to time. Once it was in land. Later the economic efficiency of large-scale manufacturing brought power. Now, power is sought more often in the strategies employed in merchandising consumer products. These strategies involve product development, mass advertising, and promotion of brand names.

More and more, the control gained through merchandising is reinforced by extending it backward to access to raw products. This leads to "vertical systems" in production and marketing. It is possible that vertical systems hinging on aggressive merchandising will become more common in processing and retailing of food and that attempts will be made to bring farming operations into the combines.

Concentration Versus Dispersion: Consequences for Producers

The basic question is worth repeating: What difference does it make as to how farm production and marketing is organized? An accompanying question is: What would be the consequences of alternate forms of organization?

Present-day farmers would find their situation vastly changed if a concentrated farm production and marketing system were to prevail throughout the United States. The change would be sharper if corporate farms would take over than if contractual integration were the choice.

The meaning will be made clear by treating the two kinds of concentration separately.

Corporate Farms

A corporation farming system would put almost all land in the hands of giant industrial-type corporations. It should not be confused with family farms that are incorporated.

Such a system, once it became widespread, would dominate all farming. A few small proprietorships would remain and there would be some landholding by persons who earn most of their income in nonfarm occupations. The latter might hold their own against corporate farms, especially if income tax rules continue being favorable to them.

A farming corporation might be confined to a single commodity like cattle ranching or cattle feeding. Or it could include several commodities. The corporation itself would normally own most or all the land, livestock, and facilities.

Former farm operators would find themselves either fitting into a niche in the corporate hierarchy or excluded from farming. A very few might become top farm managers. A larger number, but only a fraction of our present farmers, would move into middle management. All others employed on farms would be either supervisors — foremen, "straw bosses," and such — or skilled and unskilled workers. The vast majority would be of the two latter categories.

A relevant question is whether corporate farming would pattern itself after corporate industry in all respects. It might. Yet farming is subject to some biological limits. This is particularly true of livestock farming.

The Soviet Union, which shifted to a corporate-type farming, found it necessary to establish a complicated system of incentives and rewards in order to encourage farm workers to show greater responsibility toward crops and especially the care of livestock.

In any event, corporate managers would try to encourage a sense of *esprit de corps* among all employees. Employees, on the other hand, would likely sense compatibility of interest with each other. They probably would combine into unions to express those interests.

Whether farm workers' unions in a corporate farming system would be granted the same legal privileges, protections, and prohibitions as now prevail in industrial unions is highly uncertain. But union organization and activity could be expected to follow if farming goes the giant-corporation route.

Contractual Integration

If contractual integration as it now exists in poultry and in the processing of horticultural crops is a model, integrated farming of the future would allow "farmers" to own land and buildings and possibly machinery but would sharply restrict their proprietorial rights.

This is a kind of farming in which some or all of the risk — price risk, production risk, or both — is transferred from farmers to agribusiness firms. Also shifted is much of the right or responsibility of management. The contracting firm generally decides who shall produce the product, how it shall be produced, and how much production shall be allotted to each contractee.

A contractual farm production and marketing system is a hybrid between the traditional "dispersed" system and a corporate "concentrated" structure. It could take many forms. The exact situation that would prevail as to farmers' income, status, and managerial prerogatives would depend on the bargaining relationship between farmers and the agribusiness firms. *If farmers retained enough negotiating strength, the terms of contracts might approximate the values and goals they have long cherished. If they lacked such strength, they would fall short of those objectives.*

To date, neither private nor public services such as market regulations have been applied to contractual negotiations in the same way as to buying and selling products in the market.

Dispersed Farming

If farming remains dispersed among many independent producers, it will retain many of its present strengths and weaknesses. Farmers would have managerial independence but would bear considerable risk and they would be subject to the vagaries of government programs as well as of the market.

Farms probably will get larger and become fewer in number. Rising land costs will deny land ownership to an increasing number of farmers.

Farmers probably will see many of their open markets continue to disappear. Open markets that remain will be subject to increasing pressure for specification production and orderly marketing. Farmers are perplexed as to what steps to take — to re-establish markets, or to turn to cooperatives, bargaining, or other group action.

In all probability, a dispersed agriculture of the future would materially modify its sources of credit, technical knowledge, and perhaps capital inputs.

Concentration Versus Dispersion: Consequences for Input Suppliers and Marketing Firms

A concentrated system of farm production and marketing would eliminate many firms now supplying inputs to farmers or marketing their products. The relatively few who survive would find the quality of competition to be changed drastically from the day of the individual proprietary farmer.

On the other hand, dispersed agriculture would more nearly retain the conventional relationships between farmers and suppliers or farmers and marketers. Not all change is ruled out, however.

Corporate Farms

Corporate farms producing on vast acreages or feeding large numbers of livestock or poultry would probably set up supply or marketing subsidiaries. Less often would the firm buy inputs from, or sell products to, independent companies.

In the most extreme case, independent supply or market firms would simply disappear. Even in the less drastically changed system, where the corporate farm still actually buys inputs or sells products, the practices would be different from those that are now so familiar in much of the country. Supplies would probably be purchased under carefully negotiated longer-term, large-volume contracts. Products would likewise be sold under contractual arrangements entered into by bid-and-offer.

Among present supply and market firms, the ones affected most would be those now located in rural communities. The chances are that corporate farms would do most of their business with large firms in central cities. The smaller businessman now serving the independent farmer would probably find himself displaced.

Contractual Integration

In a contractually integrated farming system, input supply or market firms would, by definition, be contractually linked with farming operations. They would usually be the most important part of the combined undertaking. There is no universal pattern as to whether the supplier or the marketer would dominate. However, in view of the growing emphasis on merchandising, it is likely that market firms will gain the ascendancy. Suppliers will often be brought into the vertical complex in a subordinate role.

In general, agribusiness firms now in business have little choice between the contractual or corporate farm variety of a concentrated agriculture. Most of the smaller firms would vanish in either case. However, the survivors would probably have more stability and power under a contractual than under a corporate farming system.

Dispersed Farming

If farming remains dispersed, the number of farmers will continue to decrease. The larger commercial farmers will seek the advantages of volume purchases and some might engage in joint selling. Many others would continue to buy and sell independently. The total volume of business that farmers conduct with suppliers and market firms would be greater than now.

Even a dispersed farm production and marketing system would not keep all present supply houses or marketing firms alive. Attrition among those firms will continue, particularly in more remote communities. Nevertheless, the outcome would be substantially more favorable toward those firms than if all U.S. farming were to be concentrated in a few hands.

Concentration Versus Dispersion: Consequences for Consumers

Less is known about the effects of a concentrated versus a dispersed farming system upon consumers than upon any other affected group.

Advocates of concentration claim savings in cost of producing farm products. They promise that savings would be passed forward to consumers. Spokesmen for a dispersed agricultural organization system are skeptical.

Differences in food costs would probably be minor. A concentrated system may bring some economies but it may also have some added costs, as in management or possibly in hired labor. Spokesmen for a dispersed agricultural system point out the performance of traditional proprietary agriculture is not bad and that agriculture has adopted new technology and provided an abundant supply of high-quality food at reasonable prices.

Economies of Size in Production

Farming offers no great operating efficiency from large-size units. Scale economy in crop production is handicapped by space and distance — there are cost disadvantages in farming acreages located far from headquarters. Cost advantages for large-scale livestock and poultry production are partly offset by incidence of disease. The problems have been handled better in poultry and in cattle feeding than in hog production.

Corporate farming requires a sizable administrative staff. It leads to bureaucratic organization and the inefficiencies that accompany bureaucracy. Furthermore, if low wages have previously made some large farms look good, unionized labor in corporate farming would reverse that situation quickly.

Economies of Size in Merchandising

If farming were to become so highly concentrated that production and marketing of some farm commodities would be confined to a few firms, any economies of size in production would be partly or wholly denied to the consumer.

If production efficiency is to benefit the consumer, the marketing and merchandising system must itself be efficient and competitive. Our present farm economy serves consumers reasonably well because most of its products move through a competitive marketing system in which price competition is keen and promotion and merchandising costs are modest.

In a concentrated farming, costly merchandising and promotional techniques might offset production efficiencies. If that were to happen it might be necessary to resort to governmental regulation.

Concentration Versus Dispersion: Consequences for Income Distribution

A summary measure of the advantages or disadvantages of a new organizational structure — or for that matter the old structure — is its effect upon distribution of wealth and income.

Would a concentrated system of farm production and marketing improve the opportunities and the incomes of persons who now earn inadequate incomes from farming?

Short-Term Adjustments

If farm production were changed over to a concentrated form, the first effect would be to distribute the income of farmers more inequitably than before. The conversion process would exact a price.

The initial change would improve the incomes of a select few farm operators who moved into high administrative or middle management posts, or became skilled technicians. But it would disrupt the lives of many farmers who would be displaced. Evidence is that many displaced farmers are not absorbed readily into other employment. Even though they may not have earned high incomes in proprietary agriculture, on the average they would not improve their situation following voluntary or involuntary evacuation.

A change in the cost structure would occur as a concentrated farming system developed. The costs that are now fixed for the existing farms would become variable costs for the new firms.

Longer Prospects

Adjustments will be made over time. What will happen to distribution of income? Will differences be widened or narrowed?

To shift from any established system to a new one always imposes a heavy monetary and psychic cost on the persons directly involved. Past adjustments in farming have imposed a cost. If farming were to be wholly restructured, the pains of the past would be repeated and perhaps made more piercing.

Traditional farming has had its successful and unsuccessful farmers as measured by income and capital accumulation. Findings of the President's Commission on Rural Poverty and other inquiries have forcefully pointed out that farming has its own very large sector of poverty.

It is difficult to forecast the distribution of income in a concentrated farming system because distribution is concerned with *people* whereas income is concerned with return to individual *factors of production*. That is, income is received for land, for labor, for capital, and for management.

Traditionally the farmer has received income from two, three, or four factors of production. The differences in the income individual farmers have earned from farming are accounted for by (a) the rate of return generally prevailing for each factor, and (b) the amount and quality of each factor each farmer contributed or possessed. A farm operator owning a large acreage of land debt-free has a considerably larger income, as a rule, than a farmer who owns little land and provides mostly labor. Likewise, in concentrated farming the distribution of income would be determined by the two separate considerations. However, most "farmers" would get income from one or at most two factors rather than from all four.

In any transition to fewer owners of land there will be differential income impacts. The owners of average- and above-average-quality land will benefit as the price of land is bid up. In marginal farming areas there will be little interest in purchases for farming purposes and present owners may suffer unless there is an alternate use for the land.

Land Income and Distribution

As just noted, a basic feature of a concentrated farming would be that, to a large extent, it would separate the possession of the four factors of production. Land and much of the physical capital would generally be owned by stockholders of corporations. Management would be in the hands of professional managers. Labor would be performed by salaried employees in the case of corporate farms and by contractual farmers in agribusiness integration.

This feature of a concentrated farming would tend to widen the distribution of income among individuals in it. This is likely because the return to ownership of land would go to a separate class of the population in contrast with the present system in which return to land is primarily received by operating farmers and becomes a part of their total income from farming. Even much of the land rent paid to landlords has gone to ex-farmers or their families, and not to a separate, permanent landholding class.

As mentioned earlier, land scarcity in our nation dates from only a couple of generations ago. Now that land is becoming scarce, it is important to national policy who is to own it and receive the income from it. Combining ownership of land and labor in the operating farmer has been one of the key characteristics of our dispersed agriculture. A corporate or contractual agriculture dividing ownership of land and labor would concentrate the income received from land ownership. Inequity of income from land has been a source of social unrest through past centuries and could prove difficult again.

Group Action for Wages and Contracts

Another consequence of a concentrated farming could be an opposite effect on distribution of income. It could even out the income distribution. Specifically, the returns to farm labor might improve. This probably would be brought about by wage workers forming unions and contractual farmers joining into bargaining associations. Both would be interested in negotiating higher rates for their labor or their resources.

Industry provides a lesson. The industrial revolution created sweatshops and held workers in poverty. When the disadvantaged groups won protection by law, including the right to form organizations, their situation began to improve. Similarly, a farm economy concentrated in relatively few hands might have the economic power to depress wage rates for hired labor or contract terms for integrated farmers if they had few alternatives. But as workers and contractual farmers turned to group action, probably condoned by legislation, the situation would change.

Challenge to Dispersed Farming

The question of the kind of farm production we want is not simply one of turning to a concentrated structure or keeping the present system. A dispersed system will itself change. The structure of the farms will change. The marketing system will change and new organizational forms will appear. Special problems will arise that a dispersed farming will have to face in the years ahead. One such problem is that income distribution within present-day farming seems to be becoming less equitable, and the situation could get worse.

The pattern of land ownership, the design of farm programs, the policies toward wage labor in farming, and income tax rules are policy matters that can influence the equity of income distribution in a dispersed system of farm production and marketing.

Summary

Our traditional dispersed system of farm production and marketing is being subjected to pressures that could result in a much more concentrated system.

A concentrated farming extending itself throughout the United States would bring material changes to the farms, farmers, and rural communities of the nation. It would have some effect upon consumers.

In the long run this kind of development would convert farming to the organizational structure now found in nonfarm industry and business. In particular, a corporate farming would resemble industrial manufacturing and a contractually integrated system would have some features in common with franchise merchandising.

The merits of a concentrated versus a dispersed farming system are to be judged by comparing the consequences with the goals for our farm economy.

Farm Operators

A concentrated system of farm production and marketing would conform to farmers' desires for more security and less risk. On the other hand, such a system would conflict with their wishes for proprietary independence. Farmers who are adverse to group action would not welcome the pressure to form bargaining associations or unions.

But the farmers' sharpest conflict relative to a concentrated farming is summed up in the damage done to a cherished principle that farmers can earn a fair reward within a dispersed system given equality of opportunity and a competitive market system. Farmers have been willing to use the powers of government to establish and protect that principle.

Already that image of the "best of all worlds" (by farmers' standards) has taken heavy blows. Our dispersed proprietary farming has suffered considerable loss of opportunity. For example, costs of entering farming have risen while systems of finance have been slow to change. Farmers may be less than candid with themselves about the present situation. On the other hand, a concentrated farming system would almost certainly reduce equality of opportunity further.

Tenants and Wage Workers

A dispersed proprietary farming system affords more opportunities and rewards to owner-operators than to tenants and hired workers. A concentrated system would probably present fewer disadvantages to the two latter groups. Moreover, they would benefit from various new protections such as unemployment insurance. As a result, tenants and hired workers are more likely to look with favor on a concentrated system than are owner-operators.

Suppliers and Marketers

The position of input suppliers and marketers toward a new kind of farming concentrated in a few hands would depend entirely on whether a given firm were a part of the new complex or excluded. For those included, benefits could be substantial. For those excluded, the loss of access to individual farmers would be a serious, if not fatal, blow.

It is nevertheless fair to ask some questions irrespective of the good or bad effects on any one firm. Would it be in the national interest to convert the food and fiber economy to the conglomerate-firm structure that is coming to mark so much of nonfarm industry? Or would it be better, even from the point of view of agribusiness, to keep farming dispersed? The conglomerate-firm structure has its critics, and the questions they raise can be applied to converting a once dispersed farming to the same concentrated control system. These questions relate to economic power, to prolix bureaucracy, and to making the economic system a contest among giants.

Consumers

Consumers would be affected much less than other affected groups. Some economies of scale might be realized if farming were concentrated. But savings would probably be offset as the merchandising of food was transformed further toward promotional instead of price-based competition. On balance, consumers probably would pay food prices similar to or slightly higher than those prevailing if agriculture were dispersed.

But let us assume that consumers would be no worse off under a new system of farm production and marketing. Certainly a concentrated system would be more orderly than a dispersed one and most of the time it would operate with more precision. Occasionally the opposite would be the case, as when power struggles between contending groups — firm management versus organized farm workers or contractees, for example — disrupted operations.

U.S. farming, which has enjoyed a degree of isolation from the economic structure, life styles, and pressures of urban industry, will come face to face with them. An emerging question is: How much to yield, and how much to preserve? The question must be answered not only by economic criteria but also according to our ideas of the kind of world we want to live in. And the question must be answered in the arena of national policy.

Production of corn, cotton, soybeans, wheat, or other crops responds to supply and demand but the desired kind of agriculture, whatever it may be, is brought about through the painful process of forging a national policy.

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3. POLICY CHOICES AFFECTING ACCESS TO FARMLAND

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Wide distribution of land ownership has been a long established policy. Early U.S. farmers eager to farm land of their own found much in their favor. Primogeniture was ended. Land was first sold at low prices and then granted almost without cost through homesteading. However, availability of free land ended a generation ago and land has since become scarcer, more expensive, and increasingly subject to regulations over its use. Nonfarmers often successfully compete with farmers for ownership of land. The authors conclude that insofar as access to land determines the control of U.S. agriculture, "the key answers probably come from sources outside the agricultural sector." If farmers are to retain any control over changes in land-use policies, they must continuously articulate the needs and contributions of agriculture.

FARMOWNERS ARE SUBJECT to more public regulation of land use now than at any earlier time in the nation's history and all indications suggest an increasing public role in the future. Most regulations have been advanced as means for enhancing or protecting "the public interest."[1] Some of them are highly beneficial to farmers while others favor the interests of nonfarmers, but all speak to the future of agriculture and who will control it.

Will increased public regulation hamper or help farmers in their efforts to produce food and fiber? How does the balance between public and private prerogative in resource use influence who will control the agriculture of tomorrow? What types of public policy influence control of agricultural resources? These questions and their policy implications are examined in this chapter.

Laws Affecting Land Ownership

Wide distribution of ownership rights has long been favored as a matter of deliberate policy in the United States. Thomas Jefferson, who played a strong role in shaping our early land policies, felt that "the small landholders are the most precious part of a state" and that the government should encourage the establishment of family-sized farms. This goal was advanced when the nation developed its first public land disposal policies in 1765. It later became a leading objective of a series of laws that authorized and facilitated the sale and homesteading of thousands of acres into family-size farms.

Favorable public land-disposal policies provided a powerful magnet for attracting new settlers to the United States during the 1800's and early 1900's. More than a million acres of public domain land were sold or homesteaded in every year from 1829 through 1935, except in 1862, while between 10 and 20 million acres were disposed of to individuals in each of 26 years. The availability of cheap land facilitated the rapid settlement of the western acres of the United States. It was stirred by the speculative impulses of many buyers. The term "land poor" was commonplace along the frontier because buyers frequently acquired more land than they could reasonably expect to use at times when they really needed capital to adequately develop and improve properties they already owned.

A high point in private farmland ownership was reached in 1935 when approximately 1,055 million acres or 55 percent of the land area of the 48 states was in farms. These lands were occupied and operated by 6.8 million farmers. Since that time the statistic for total area in farms has increased because of the inclusion of the areas of leased public grazing lands reported in the totals for individual operators, but both the area of privately owned farmland and the number of farm operators have declined.

This decline was prompted by factors other than laws affecting land ownership. It is true that homesteading generally came to an end during the 1930's and that there was a flurry of legislation passed during the 1930's to prevent credit institutions and other corporations from acquiring large areas of farmland. But unlike in some other parts of the world, no legislation limits the size of farm holdings or the choice of land that individuals can acquire and hold for farming purposes.

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[1] Public interest, for which no single definition exists, is a dynamic expression of political preference, changing as new choices and new information are introduced. The term is used to express the fact that social impacts of individual action do exist.

The principal land-related regulations that currently affect farm ownership include zoning ordinances, building and subdivision codes, regulations generated by soil and water conservation districts, and, more recently, laws designed to discourage and control pollution. Regulations with a less direct impact on farm ownership include tax levies, credit policies, insurance requirements, and housing regulations. The impact of these measures on farmers varies with the specific situation. In the past, farm groups have played a strong role in deciding or influencing which measures should be applied and how they should be applied. But this situation is changing. Increasing numbers of nonfarm rural residents as well as the "one man, one vote" phenomenon are shifting the balance of power in many communities. Regulations have prevented some farmers from carrying on practices that they have viewed as personally advantageous when the interests of others were affected. Additional conflicts between individuals and "public" preferences may be expected in the future.

In general, it would seem that land-use discretion open to the farm operator is diminishing. Two specific policy areas that illustrate this are discussed below.

Environmental Quality

Increasing penetration of nonfarm land uses into rural areas has raised a number of conflicts among rural neighbors. Nuisance ordinances are frequently the result where a noisy, smelly farm disturbs the more recent yet more numerous and vociferous residents seeking a "patch of green." Water pollution laws in several states have closed a number of feed lots. These and similar expressions of public interest in a pleasant rural environment are limiting the land-use options open to commercial farmers. The trend seems to be a result of both increasing urban penetration and increasing awareness of the environmental issue. *By introducing new elements of cost and uncertainty into production, environmental concern would seem to encourage further concentration in units large enough to permit required investment in environmental quality and discourage continued operation in urbanizing areas.*

Taxation

In addition to direct taxes on land, other types of taxes influence land holding. Capital gains taxes have long encouraged conversion of income to capital investment by landowners. Perhaps the greatest impact on landholding comes in the nonfarm category where individuals invest in land improvement or livestock to be converted to capital gain later. For commercial farmers in the 30-percent or above income tax bracket, capital gains taxes may exert some incentive to increase farm size, but for most farmers other factors outweigh the gain tax in a farm size decision.

Rising land values in conjunction with relatively modest capital gains taxes encourage landholding by nonfarmers. In addition to the "rural amenities" of land ownership, land offers an attractive hedge against inflationary impacts on income. Increasing land ownership by nonfarmers or token farmers will shift the balance of power in land-use policy farther from the commercial operator. Such ownership will also increase land prices making concentration of farm production more difficult.

The Tax Reform Act of 1969 has partially closed the tax benefits on returns from raising beef-breeding cattle. Small to medium investments still have tax advantages, however, thus encouraging dispersion of production. A similar effect may be noted on size of fruit orchards, resulting from the recent requirement for capitalization of all expenditures within 4 years. For field and vegetable crops, however, the Act encourages larger farm units. In California, for example, decreased federal income tax rates have increased optimum farm size from between 1,250 and 1,750 acres in 1962 to approximately 4,500 acres in 1972 *(1)*.

Land Tenure Arrangements

Perpetuation of the family-sized farm has been encouraged in the United States both by favorable legislation and land policies and by the practices followed in the settlement and development of new farms. Attempts were made to establish manorial estates in some of the northern colonies but these were unsuccessful because workers and tenants found numerous ownership opportunities available to them. Abandonment of the rule of primogeniture and of the entailment of estates, arrangements that usually called for the passing of estates to the eldest son or to the ranking male heir, also contributed to democratic equality between tillers of the land and to the assumption that all farmers should aspire to individual owner-operatorship.

A somewhat different situation existed in the South where cotton favored large plantations. But here too, many farms were operated in family-sized units. Emancipation of the slaves brought a shift to extensive use of sharecroppers and tenants in farming operation in the South. This situation differed from that found throughout much of the nation. The high rate of farm tenancy reported for the South, however, soon had a counterpart in the increasing tendency of farm owners in other commercial farming areas to lease their farms to tenants.

In 1880, 25 percent of the nation's farm units were operated by tenants. This gradually increased to a high

Table 3.1 — Number of Farm Operators by Tenure Class in the United States, 1930 to 1969

Tenure class	Year				
	1930	1940	1950	1960	1969
All operators	6,295,103	6,102,417	5,388,437	3,707,973	2,730,232
Full owners	2,913,052	3,085,491	3,091,666	2,116,594	1,705,702
Part owners	657,109	615,502	825,670	834,470	671,607
Managers	56,131	36,501	23,646	21,060	N.A.
Tenants	2,668,811	2,364,923	1,447,455	735,849	352,923

Source: U.S. Census of Agriculture.

of 42 percent in 1930. Since that time and since World War II in particular, the proportion of full tenancy has dropped to a low of 13 percent in 1969. The alternative opportunities provided by urban and nonfarm employment have played a major role in drawing tenants away from farms.

The increasing proportion of farm ownership reported since 1930 has been accomplished more by a decrease in tenant numbers than by an increase in the number of full owners. The total number of farm units in the nation dropped from 6.3 million in 1930 to 2.7 million in 1969. Meanwhile, the number of full owners declined from 2.9 million to 1.7 million while the number of tenants dropped from 2.7 million to 0.4 million (Table 3.1).

A major development in the distribution of farm tenure classes is the growing significance of the part-owner. These part-owners own and live on some farmland that they usually operate while they rent additional farmland. Their numbers increased from 656,750 in 1930 to 671,607 in 1969. Meanwhile, they extended their operations from the handling of 245.9 million acres in 1929 to 550.6 million acres in 1969. Their relative position as a tenure group has climbed from 10 percent of the farm operators in 1930 to 25 percent in 1969, operating 25 percent of the farmland acreage in 1930 and 52 percent in 1969.

Another significant development in the farm tenure situation has come with the increasing importance of absentee and large-scale ownership. Census statistics do not fully document the extent of these trends. It is common knowledge, however, that doctors, lawyers, bankers, and other urban investors have acquired considerable tracts of valuable and productive farmland around urban areas and in prime agricultural and ranching areas. There is, of course, some transfer of land from nonfarmers to commercial operators. Nonfarmers accounted for 38 percent of the farm acquisitions between 1969 and 1970 as compared with only a third of the acquisitions in the 1959-1967 period. The number of operating units involving holdings of 500 or more acres increased from 4 percent of the total in 1930 to 13 percent in 1969. These totals suggest but probably underestimate the extent to which farming corporations and large operators have extended their sphere of control over farming operations in many parts of the nation.

Trends in Land Use

The total acreage included in farms in the United States has decreased considerably since 1930 and particularly since 1950. In 1930, the nation had 990.1 million acres in farms. This total rose to 1,161.4 million acres in 1950 and then declined to 1,123.5 million acres in 1959 and to 1,063.3 million acres in 1969.

This decline in farmland area was associated with a reduction in the number of farm operators and also with a decline in the area of harvested cropland. Farm operating units declined from 6.3 million in 1930 to 5.4 million in 1950, 3.7 million in 1959, and 2.7 million in 1969. Meanwhile, the acreage of harvested cropland dropped from 359.2 million acres in 1929 to 344.6 million acres in 1949, 311.5 million acres in 1959, and 273.0 million acres in 1969.

Several million acres were added to the cropland total after 1930. Most of this new acreage came from the development of new reclamation projects in the West, but additions also came from private development activities and from the inclusion of the acreage in Alaska and Hawaii in the national totals after their admission as states in the late 1950's. These additions were more than equaled by the substantial reductions in total farmland area that came with the shifting of large tracts to shopping center, industrial, residential, highway, and other urban-oriented uses and with the shifting of still larger areas to less intensive uses.

The reduction of land in farms and of the total acreage harvested has not resulted in less production. Farm production almost doubled between 1930 and 1970 and total farm output increased 41 percent between 1950 and 1970 although there was 13 percent less cropland harvested. Increased use of technology has made it necessary to use a variety of acreage-allotment and production-control programs to restrict production at a time when most nations have been trying to encourage increased food production.

Table 3.2 — Average Size of Farm Operating Units in Acres

	Year				
	1900	1930	1950	1959	1969
United States	146.2	156.9	215.5	302.8	389.9
North	133.3	166.2	194.4	245.7	306.1
South	138.2	106.4	148.2	217.2	286.6
West	386.1	433.3	699.6	987.1	1,250.4

Source: U.S. Census of Agriculture.

With the decrease in land in farms and number of farm operators has come increasing commercialization of America's farms. Farm operating units have increased in average size as shown in Table 3.2.

Impact of Taxes

Farmers generally enjoyed a more favorable relationship between their property tax loads, their net incomes, and the market values of their properties during the middle 1940's. Property tax rates had dropped during the depression years of the 1930's and had barely started to rise again while incomes and property values had been pushed upward by wartime conditions.

In the quarter of a century that has passed since this "golden age" of agricultural property taxation, property taxes have risen to new highs in most states. The average property tax for farm real estate in the United States rose from 44 cents an acre in 1945 to 59 cents in 1950, $1.22 in 1960, and $2.27 in 1969. State averages in 1969 ranged from as little as 18 cents per acre in New Mexico, 33 cents in Wyoming, and 45 cents in Alabama to $11.45 in California, $12.31 in Massachusetts, and $18.87 in New Jersey. Although property value increased, the average tax per $100 of farm real estate value rose from 77 cents for the nation in 1945 to $1.13 in 1969. State averages in 1969 ranged from lows of 25 and 28 cents per $100 of farm real estate value in Alabama and Louisiana to highs of $2.43 per $100 in Maine and Massachusetts.

The net impact of farm property taxes on farmers can best be viewed in terms of the relative portions of net farm income it has taken to pay them. Farm real estate and personal property tax payments accounted for 14 percent of the average farm operator's net cash income before payment of property taxes and before deduction of rental payments to nonfarm landlords in 1940 (Table 3.3). Rising net cash returns reduced this to 5 percent in 1945. In 1950, it was 9 percent. Rising tax levels then brought it up to between 13 and 14 percent between 1960 and 1965 and up to 18 percent of the net cash income level in 1970. This is a national average. The precise impact, of course, varied greatly between individual operators and areas.

Table 3.3 — Relation of Farm Property Tax Payments to Net Cash Incomes Realized from Farming Operations in the United States, 1940-1970

Year	Farm property taxes	Net cash income realized from farming operations	Rental payments to nonfarm landlords	Percent of operator's net income
		millions of dollars		*percent*
1940	451	2,285	491	13.9
1945	557	9,251	1,128	5.1
1950	919	7,743	1,175	9.3
1955	1,141	7,667	1,054	11.6
1960	1,302	8,969	1,024	13.1
1965	1,943	10,840	1,483	14.0
1970	2,994	12,557	1,494	17.[illegible]

Source: (21), pp. 37 and [illegible].

As the above data suggest, farmland values have not been closely correlated with net farm incomes. Purchases of land for urban-oriented uses, the acquisition of land for farm-enlargement purposes, the extensive investment of nonfarm monies in agricultural properties, and expectation of further inflation have helped to boost farmland values above the levels justified by current farm income expectations. This situation has complicated the managerial problems of bona fide farmers who have needed additional land for operating purposes and it has often resulted in higher property tax levies than farmers might otherwise have been required to pay.

Rising property taxes have posed a major problem for farmers in the fringe areas surrounding expanding urban areas. These developments in the areas adjacent to cities have brought the sale of numerous tracts of farmland for various urban uses. These sales have usually involved prices somewhat in excess of the value of the land for agricultural use.

Tax assessors have viewed these prices as indicators of the highest and best use-values of the land and have adjusted their farmland assessments to these levels. The impact of this action on local tax levies has been further aggravated by the movement of new residents with urban-oriented demands for public services to the local governmental and taxing districts. The higher tax levies that have followed have encouraged many farmers to sell out to speculators while those farmers who have kept their land in agriculture have often found that increasing portions of their net returns have often been needed for the payment of property taxes.

A variety of special use-value assessment arrangements have been authorized in approximately half of the states to protect bona fide farmers from taxing policies that could force them to shift or sell their lands for nonfarm use. The least complicated of these arrangements calls only for the assessment or classification of those lands used for agriculture at no more than their agricultural use-values. This arrangement provides farmers with a tax break without imposing any responsibility on them to keep their lands in agricultural use.

A second arrangement calls for the assessment of eligible lands at both their highest and best use and at their current agricultural use-values, taxation of farmland at its agricultural use-value as long as it is used for this purpose, and the collection of a rollback tax equal to the difference between the taxes paid and those that would have been paid for some given time period — usually either three or five years — at the time a shift in use takes place. Other special arrangements provide for the combination of rollback taxes with requirements for agricultural zoning, the requirement that local planning commissions approve the designation of the areas eligible for special tax treatment, and the use of penalties in addition to rollback taxes when lands are shifted to nonfarm uses without a required period of notice.

Hawaii has gone farther than any other state in establishing agricultural and conservation districts in which lands are designated for agricultural and natural area uses. Similar systems of agricultural and natural area preserves have been recommended in other states. New York has authorized the establishment of agricultural districts that can enjoy some of the tax advantages of agricultural preserves. California and Washington have adopted somewhat comparable programs under which long-term contracts can be entered into between local governments and farmers for retaining rural areas as open space.

Like other business operators, farmers must pay income taxes, sales taxes, business taxes, inheritance taxes, and a variety of lesser taxes as well as property taxes. Each of these taxes has its effect on the decisions and actions of farm operators. Inheritance taxes, for example, can result in the breaking up of large farm holdings. These taxes along with the general property tax ordinarily have no more severe impact on farmers than on other groups.

Competing Demands for Farmland

Several million acres of land have shifted out of agriculture to other uses since the end of World War II. Much land has been taken for building new highways and interchanges. Urbanization has claimed substantial acreages in some areas. Reservoirs, parks, and recreation areas have taken large areas. Substantial acreages also have shifted to less intensive uses. Some of these lands are used for grazing purposes, are slowly reverting to forests, or are lying idle except for their occasional use for hunting and other recreational purposes.

Farming can rarely compete on an even basis in the marketplace with highways, residential subdivisions, and other urban-oriented uses of land. The developed farmland areas around cities often provide prime attractions for suburban and urban developers and for land speculators because their flat terrain and already available road, utility, and public-service systems require lower development costs than many equally accessible but less developed sites.

The use of good farmlands for urban development has already resulted in the loss of numerous prime agricultural areas. This process cannot be completely stopped. Millions of additional acres will be needed for residential and other urban-oriented uses by our expanding urban population. Some believe that more emphasis should be given to the channeling of urban growth to lands of limited agricultural potential. At the moment the nation has somewhat more than enough land to care for its food-production needs. Its supply of prime agricultural lands, however, is definitely limited. They argue that much of this area should be kept in agriculture because these lands have a higher potential for agricultural use and can be expected to respond better to new agricultural technology than can the large acreages of lower-grade lands that are equally well suited to nonfarm uses.

With the growing demand for nonfarm uses of land, large acreages now included in farms can be expected to shift to other uses. *This trend cannot continue indefinitely without creating serious problems for the nation.* Long before a true crisis develops, public programs and policies will be needed to reserve significant areas for future agricultural use. Some of these policies will be limited to applications of agricultural zoning and special land taxing arrangements. Effective action will call for careful land-use planning on a federal and state as well as a local basis and will probably require the establishment of agricultural districts and preserves within which the shifting of individual tracts to nonfarm uses cannot be accomplished without public hearings and the joint approval of public and private decision-makers.

Future Access to Ownership

Public policy in the United States has favored wide distribution of the rights of ownership in land. Prospective farmers have been encouraged to acquire, develop, and operate individual farms. This policy is still being followed. However, the great bulk of the area that can be profitably developed and used for agriculture has already been brought into use.

The general trend of recent decades shows a shifting of both farm acreage and farm operators out of agriculture. Many of those who have remained in farming have found it expedient to operate farms of larger size. Farm credit policies have been devised to help keep the road to ownership open. Yet the need to acquire a larger operating unit together with the upward trend in farm real estate prices has definitely narrowed the scope of the average farm operator's opportunities for acquiring ownership.

What of the future? Present indications suggest that the average farm of the future will increase both in acreage and in value. The attraction of farm ownership for nonfarm investors, who are often only partly concerned with current returns, also suggests that farmers will continue to receive a low current return on their capital investments. *These developments can narrow the road to ownership and limit access to ownership to some potential operators who lack family or other special financial backing.* They can also significantly affect the ability of commercial farmers to influence land-use policies in ways favorable to agricultural production. Control of agricultural resources is simply being shared among more and more segments of society.

Farmers as a group are often viewed as economically conservative. The traditions of ready access to ownership and of relatively complete rights of ownership are still important to them. With increasing costs and new challenges from nonfarm land uses, farmers may develop more tolerance for public guidance of land use.

Possible governmental policies might include acreage controls and cropland retirement programs to limit production and help bolster farm incomes, special tax laws to ease the farmer's tax burden, and zoning and improved planning to protect agricultural areas from urban encroachments. Maximum limits might be placed on the size of farm enterprises and holdings to protect the more traditional farmer from domination by large corporate operators. Regulations also might be devised, as in some parts of Europe, to keep farms in the hands of farmers and to prohibit their acquisition by nonfarm buyers or heirs who do not intend to become resident operators.

Regardless of the policies recommended and followed, it appears inevitable that the farmland owner of the future will be more subject to public and social controls than has been the case in the past. *In fact, the key answers to the question "who will control agriculture" probably come from sources outside the agricultural sector.*

With our growing population and the expanding influences of urban society, public policies for the direction of land use are becoming more and more necessary. Zoning ordinances, subdivision and platting regulations, building codes, general land-use controls, and measures requiring the control of pollution and the protection of the environment will be demanded at all levels of government. At present, commercial agriculture frequently lacks an effective voice in generating and enforcing land controls. Lack of interest about government regulation among farm people has resulted in a shift of initiative to nonfarm interests where land-use policies are concerned. If they are to retain any control over changes in land-use policies, farmers must continuously articulate the needs and contributions of agriculture.

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4. EFFECTS OF ACCESS TO TECHNICAL KNOWLEDGE AND COMMERCIAL INPUTS[1]

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Farm production inputs have limited value without the knowledge of how to use them. From the early agricultural societies and fairs to today's universities, experiment stations, extension services, and market information activities, public policy has been aimed to make knowledge equally accessible to all farmers.

Likewise, policies to keep input supply markets competitive and to foster both supply and credit cooperatives have been intended to help all farmers.

Lessened public support for these activities, the authors emphasize, would give an advantage to larger farms and lead to more concentrated agriculture. Some present trends, such as financing through contracts, partnerships or corporations, already indicate a trend to more concentration. Yet, minimum-wage laws and other policies affecting hired farm labor could work to the benefit of a more dispersed agriculture.

THE HISTORY OF U.S. AGRICULTURE shows a constant quest for new knowledge and improved farming techniques, and, as a result, a changing mix of inputs in agricultural production.

U.S. agriculture developed primarily through individually owned and family operated farms. With policies that encouraged such widespread, dispersed ownership and operation, a large number of production input suppliers became established to supply the needs of farmers and farm families.

As the industrial revolution spread into America, manufacture of inputs away from farms replaced home production. Such inputs as tools, machinery, fertilizers, feed supplements, and other supplies came from factories. Over the years, traders, dealers, and supply centers became established in smaller towns to supply the commercial inputs to the large number of widely dispersed farmers. Now, as farm production is being concentrated in fewer operating units, the structure of input supply industries is also undergoing major changes.

In the early years of our nation, land owners and public officials encouraged agricultural societies, expositions, fairs, and farm publications. They recognized the importance of these means of communication for spreading technical knowledge that would stimulate agricultural growth and development. Later, the efforts of public officials and private citizens helped obtain public financing for higher education in agriculture, for agricultural research, and for educational programs to disseminate research findings through the Extension Service and through high school agricultural programs. These programs aimed to provide access to knowledge for all farmers, large and small. At the same time, the input supply system operated in an open market with farm inputs widely available to farmers at competitive prices.

In the early 20th century, public policies fostered the development of cooperatives to maintain competitive access in inputs. Government-assisted cooperative farm credit agencies were established later to help large and small producers obtain the credit needed to buy commercial inputs.

Credit, originally supplied by friends, relatives, merchants, and later by bankers, has become a highly specialized tool. It is the means by which a farmer today acquires the needed risk capital for both long-term and short-term production. Financing has become a key part of the whole management and decision-making process.

Inputs and Knowledge Affect Control

Today the policies that affect the availability of production inputs and the knowledge of how to develop and use them for maximum return also affect who will control the agricultural production process. Two central issues emerge in this changing structure:

(1) Who will have control of commercial agricultural production? Control could be measured by amount of

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[1] Appreciation is expressed to Walter Sellers and Allen Smith, Economic Research Service, USDA, for their review of preliminary drafts of this chapter.

production coming from farms of different sizes. Or it might be measured by the organization or groups making the major decisions in the food production and marketing system, whether it be suppliers of inputs, farm producers, marketing firms, or retailers.

(2) How will present farm owners, operators, workers, and agricultural business firms be affected by a further reduction in the number of farm operating units?

The major issues affecting control through access to technical knowledge and commercial inputs are:

- *How will new knowledge be discovered and disseminated?* Limited access to research findings will give special advantage to those who get it first. Widespread access to new research findings would avoid giving special advantage to any individual or group. However, even with widespread access to new research, some may be able to use the findings and gain more control than others.
- *How widely available will be the benefits of the educational system to all producers?* A policy that limits the educational opportunities to some individuals or groups over others will lead to competitive advantage and control.
- *Will complete knowledge of transfer prices be available so that buyers and sellers have equal understanding of demand and supply conditions both in the input supply and product markets?* Otherwise, an advantage to the side which has more complete knowledge would result.
- *Will all producers have access to credit and financing at competitive rates, whether they borrow in large or small amounts?*
- *What would be the impact of unions, higher minimum wages, and other labor policies that affect the competitive positions of large and smaller farms, the supply of available labor, and the control of decisions dealing with hired labor?*
- *Will competitive conditions be maintained in procurement of production inputs?* Any advantage secured by one size or type of producers could lead to control.

The Quest for Technical Knowledge

Public policies provide an important means by which food and fiber producers gain access to technical knowledge and commercial inputs. This is done primarily through the experiment stations and the Cooperative Extension Service. Manufacture and distribution of commercial inputs, on the other hand, are carried out primarily through private industry. Credit is supplied through private sources and government-authorized cooperatives. The United States and most Western European countries follow this pattern.

Research

The need for more scientific testing of techniques, materials, and methods came with the advancement of farming methods. The Hatch Act of 1887 and successive acts have established a system of public-supported agricultural research. Some private farm and agribusiness firms and industries have drawn upon public-supported research findings and have further advanced the body of scientific knowledge through their own research efforts.

Although the entire job of agricultural research could be turned over to private industry, the present system of combining public-supported research with freedom for private firms to do research provides some advantages. *Public-supported research findings are available to all agricultural producers and business firms.* Research projects deal with a wide range of agricultural production in all parts of the country. The cost of such research is paid by the taxpaying public. Some private research is paid for directly by product users, or from grants supplied by the government or by foundations.

Research carried out by private firms may take two forms: (1) research carried out under contract and sold, as any other service, for a price to cover its cost; and (2) research carried out by the firm, or under contract, usually to develop a new product. The second type is likely to be done only for products promising substantial commercial importance.

Those who have need for research findings with limited commercial value would probably contract for the research. Usually only large firms or businesses could afford to do so. Therefore, a policy to confine research mainly to private firms would contribute to increased concentration in farming operations.

Some types of research such as soil conservation or pollution control have a broad public interest. Unless it also has commercial payoff, few individual firms will undertake it.

Education

Scientific knowledge in agriculture has evolved as a jointly financed effort from federal, state, and private sources. Public and private schools and universities and industry draw upon publicly and privately supported research in their teaching and business activities. Private industry uses publicly and privately developed technology to provide tools, equipment, and know-how to help further public educational effort.

Most scientific agricultural information is widely available to all producers and agricultural businessmen through extension programs, meetings and short courses, and formal classes in high schools, colleges, and universities.

If public support for agricultural education were substantially reduced or eliminated, we could expect privately operated agricultural schools to develop. They might be quite different from what we have now. If public research findings were available, they would draw upon them in their teaching programs. If no public research findings were available, the private schools would have to carry out some research or draw upon other private sources as best they could. The quest for new knowledge by private firms would continue, and they would sell this knowledge through their products or services. Sources of unbiased technical knowledge might be more limited and the direct cost to the user might be higher than under publicly supported educational research programs. Although private industry could expand its role in education, the public role might still be needed to serve as a referee or guardian of accuracy and fairness. Accessibility could be biased in favor of the more affluent farmers.

Management Information Assistance

Management requires knowledge. The policies that affect the access to this knowledge are just as important as the access to latest technology concerning feed or fertilizers. Cooperative management associations of producers have developed with joint support from public funds and private member fees. In addition, private management consulting firms and services have developed drawing upon public and private research in management methods and techniques.

The present combination of publicly and privately supported management services has given producers a variety of choices in obtaining the type of services they need at prices they can afford. Elimination of public support for management information systems would result in higher costs to producers, put smaller operators at a disadvantage to larger firms, and further stimulate the trend to fewer and larger producing units.

A policy issue for the future is: To what extent should public funds be used for research and extension efforts specifically for smaller farmers, many of whom obtain only part of their income from farming and the remainder from off-farm employment? The decision on this question will partly determine what part of agricultural production continues among this segment of the farm population.

Performance Rules

Increased technological development, valuable as it is, exacts its price. It requires safe, responsible application, so we have established regulations and laws protecting the public interest. Public education has helped people to be informed and to abide by the laws.

Without public education on performance rules, private sources would handle the job wherever they could do it profitably. But the consequences of such a policy would be more slanted toward larger producers and marketing firms that could afford to hire information and legal services. *The key question is what effect would follow upon control of production and the concentration or dispersion in number of producing units.*

Market Information

Knowledge of current and prospective supplies, buying and selling prices, and other market conditions is necessary if buyers and sellers are to make informed decisions. *If any policy permitted one side to have more knowledge about demand-supply conditions, the advantage would probably go to the larger, more strongly financed firms that can gather their knowledge without public support.*

A publicly supported market news and information service has been provided over many years. Public sponsorship of crop and livestock estimates, for example, provides both buyers and sellers with forecasts of supplies as a guide in setting prices. Livestock numbers provide a gauge of prospective demand for feed crops and manufactured feed products. Without public reporting of supplies and prices, private market-reporting services would develop similar to some already in existence. Under such a system, some question inevitably is raised as to accuracy or integrity of such private services.

And again, any reports that would be more accessible to larger operators would give them advantages in buying and selling over smaller farmers and eventually lead to greater concentration and control among the larger farm units.

Financing: Availability, Rates, and Terms

Risk capital and a continuing line of credit are essential to modern farm production. Consequently, any policy that makes credit more available, or on better terms to certain individuals or groups of producers would affect the future structure of agriculture — even perhaps leading to eventual control by those with that advantage.

Financing of farm production has become more complex in recent years. Traditional credit — money borrowed though country banks, production credit associations, federal land banks, life insurance companies, and individuals — is still important. However, modern financing of farm production now also extends to the following sources and methods.

Merchants and Dealers

Independent businessmen or affiliates of larger manufacturers or suppliers may supply the credit for short-, intermediate-, or long-term periods. Established policy permits, with minimum government regulation, direct loans by the firm or refinancing through sale of credit paper to other financial institutions or to a credit affiliate of the parent company.

Rental and Leasing Services

These have emerged as another means of financing of inputs. Machinery and equipment companies can lease or contract equipment instead of selling it to the user.

Control Over Farmland

Since control of land has much to do with the control of crop production and of some livestock production, public policies dealing with availability of farm real estate financing for both operators and nonoperators can influence the future dispersion or concentration in farming. Availability of credit relative to prospects for return on farm real estate investment can influence what type of nonoperating owners purchase land and the control they exert.

The vast domain acquired during the 18th and 19th centuries was sold or given away under policies aimed to disperse private land ownership and development among a large segment of the population. The federal land banks, the emergency lending programs of the 1930's, and the Farmer's Home Administration were later established to further this policy.

Although the number of farmers and farms has declined in recent years, the 1969 Census of Agriculture shows that 62 percent of farmers owned all of their land, 25 percent owned part of their land, and 13 percent rented all their land *(5)*.

Unless individual landowners and those seeking ownership can continue to obtain financing at competitive rates, the typical pattern of dispersed farm production is likely to gradually shift to concentrated larger-scale operations. Any policies that limit availability of credit for land purchases by individual farm operators would undoubtedly lead to greater concentration of land holdings by owners who can finance their purchases as large-scale industry does.

Options and Choices in Sources of Financing

In recent years, public policy has fostered a privately owned, government-regulated banking system and in addition has supported cooperative and government-funded credit through the agencies of the Farm Credit Administration and the Farmer's Home Administration.

Our present private credit system and the cooperative farmer-owned production credit associations and land banks have been accepted and used by farm producers. The federal intermediate credit banks which provide capital funds for production credit associations and the banks for cooperatives tap the public money markets for funds at competitive rates. The Farmer's Home Administration carries out lending activities as authorized by Congress and includes some production credit, emergency assistance, and government-guaranteed production loans. The Federal Reserve System and the Comptroller of the Currency set rules and regulations for operations of commercial banks.

Financing Through Contracts

Integrated production of some farm commodities has revolutionized the entire process of input and credit use. For example, in the broiler industry major feed companies supply feed, chicks, medicine, and a guaranteed market for the finished birds instead of the traditional loans by institutional lenders. The farm operator sells his services instead of buying feed. The contractor may also rent or lease equipment or provide guaranteed loans. Contracting and integration have thus become vital parts of supplying inputs and maintaining markets for some agricultural commodities.

The effects of integration upon number and location of producing units will depend upon the specific needs of the contractor. *But in many cases the contractor may actually control more production decisions than the man who raises the contracted crop, livestock, or poultry.*

If integrating and contracting spread to other commodities, the access to production inputs for some farm production may be limited largely to those who participate in the integrated system. The issue will not be so much of obtaining available credit at competitive rates, but of obtaining a contract that provides acceptable returns to producers who are selling their labor services along with the services of their land, buildings, and equipment.

Financing Through Partnerships and Corporations

Traditionally, to obtain credit, farm operators have agreed to pay a fixed rate of interest on the amount borrowed for a specified period of time. Examples of large-scale financing through shares of equity such as partnerships, joint ventures, and corporate stock suggest that agricultural credit and financing practices will continue to undergo change.

To gain the advantages of joint ventures, partnerships, and corporations to organize farm production and obtain the needed equity and operating capital requires so much financial and legal skill that a medium- to large-scale operation is required.

Some partnerships and corporations may include only part of a farm production business such as grain drying, storage, or certain major machinery services.

When certain options in financing and procurement of inputs are selected, the farm producer may lose some control over production and marketing decisions. Financing arrangements accessible under various circumstances can shift control to the source of the financing. The source may be a financial institution, an input supplier, a contractor, or firms or individuals that provide financial resources through loans, bonds, stocks, or other shares in the equity.

Use of the Futures Market

The futures market can help farmers get financing. Hedging crops or livestock may give some producers access to more financing than they could otherwise obtain. Banks or other lending institutions may extend credit where the operators know how to use futures contracts successfully. Although producers of all sizes could in principle use futures markets as a means of gaining access to financing, the medium- and larger-size operators will probably be able to take greatest advantage of them.

The Commodity Credit Corporation

The CCC has also become a major source of credit for farmers through commodity loans. Eligible participants in the commodity support programs can receive loans at lower rates than those charged by lending agencies. For some commodities, if market prices are less than the loan rate at the maturity date, the government will take over the crop and the "loan" becomes interest free.

Economic Effects

As stated above, financing policies will affect the economic organization of agriculture. If individual operators cannot obtain sufficient credit, some will take other employment, while others will either sign contracts or form partnerships or farming corporations to finance their production.

In times of rising interest rates, state usury laws that restrict interest rates paid by individuals could encourage formation of farming corporations that are not affected by these laws. The basis on which state usury laws are applied to farm operators, whether they are considered as individuals or business firms, will affect their available supply of credit.

Major shifts in financing procedures are likely to encourage more concentration in some types of agricultural production. Variable mortgage credit introduced by Federal Land Banks provides for changing the rate of mortgage interest during a long-term loan. The flexibility gives the lender some protection against inflation but could add costs for the borrower. If public policies do not sufficiently limit inflation so that long-term loans are feasible, then a shift in the methods of financing risk capital will take place. These methods may include a share of gross returns to the lender, integrated contracts, joint ventures and partnerships with lenders, or public offering of stock to finance large capital investments.

Such shifts would stimulate the trend to larger-scale operations and the concentration of agricultural production into fewer and larger units.

Social Effects

Credit policies that encourage large-scale enterprises and give them economic advantages over smaller, more dispersed farming operations will force out the smaller operations, reduce the number of support input supply firms, and produce a different type of social structure in rural communities. A large number of independent operators would gradually be replaced by employed rural residents who work for large-scale farm enterprises.

Group Action in Procurement

The central goal of all group action in procurement of farm inputs has been to obtain the items needed and, if possible, reduce the cost from what it would be through individual action. Public policy decisions also influence or affect group procurement.

As group procurement activity increases, the policy issue may be whether open markets for input supplies will continue. Or, for some items will they be available only to participants in the group?

The general policy in recent years has been to permit group action in procurement because such action reduces costs to producers. Presumably, it thereby lowers costs to buyers and consumers of agricultural products.

The Capper-Volstead Act, passed in 1922, set national policy in this direction. This Act exempts producer cooperatives from antitrust laws. As a result, a cooperative association that is properly organized and functions in a normal manner is not acting in violation of antitrust statutes. However, this does not permit cooperatives to engage in prohibited practices such as boycotting or other activities that unduly restrain trade *(1, p. 53)*.

State laws authorize organization of cooperatives and give them rather broad powers for organization, operation, and financing. Federal laws exempt them from payment of income tax on those funds paid as patronage refunds and from registering their securities with the Securities and Exchange Commission *(4, p. 694)*.

Cooperatives have stimulated competition in supplying inputs. Generally farmers, whether they buy from cooperatives or privately owned firms, benefit from lower prices or improved quality and service.

If cooperatives serve both large and small farms, they provide advantages to both. So even though the number of farms has declined, cooperatives have helped maintain some dispersion in the size of farms. As long as they serve single proprietors, partnerships, and corporations, they will have little effect on the business organization of farm production.

If cooperatives can effectively serve as purchasing and marketing agents for small farmers, they can help to maintain smaller, dispersed farming units. However, a problem among many cooperatives has been a lack of discipline within the membership. Further, to the extent cooperatives reduce input costs, they can lower production costs, encourage adoption of new technology, and increase returns to labor and management. *To the extent that they can maintain current farm operations by reducing costs, cooperatives may slow the trend to reduced farm numbers.*

Employing Farm Labor

Public policies dealing with hired farm labor are concerned with (1) proper compensation of farm workers; (2) their financial security; and (3) their health and safety.

Policies are well established in employment of industrial workers to protect them from exploitation by their employers. Many of these policies are gradually being extended to farm workers. The national policy direction seems clear: *As agriculture becomes more like nonfarm industry, the policies and regulations that deal with industrial workers will be applied to farm workers. As a result, employers in agriculture will give up part of the control of their decisions dealing with employees to public agencies and in some cases to l[illegible]ations.* However, on farms where only two or three full-time laborers are employed, unions will have comparatively little direct influence compared with those operations with larger numbers of employees.

Until recent years, legislation affecting employed workers excluded farm labor. However, hired farm workers are now covered by some legislation and further changes can be expected.

Minimum Wages

In 1966, farm labor was included under the Fair Labor Standards Act. A minimum wage was established beginning at $1 in 1967 and increased by steps to $1.30 by 1969. It applied to all employers who hired more than 500 man days of farm labor in any calendar quarter of the preceding calendar year. All larger employers, those who hire an estimated total of 500,000 workers, are affected. A broader coverage to include more farm workers has been proposed *(6, pp. 57-58)*.

Under the Sugar Act of 1948, producers seeking support payments are required to pay fair and reasonable rates established by the U.S. Department of Agriculture.

The effect of raising minimum wages varies in different farm operations. Where employees are highly skilled, their wages would already be above the minimum. Where large numbers of unskilled workers are employed, the increased cost would encourage mechanization to reduce the number of workers needed. But mechanization forced by higher-priced labor may reduce the competitive position of large-scale operations. *Low-cost labor gives benefits to large operations. When costs are forced up on large-scale operations, those farms that use mainly family labor become more competitive.* Thus, when minimum wages are raised, farms using family labor may be in a more favorable position.

Safety

The Fair Labor Standards Act in addition to minimum wages also sets a minimum of 16 years of age for employment in agriculture during school hours. Outside of school hours and vacation periods the Act sets no restrictions for children performing nonhazardous work on farms. It does set limitations on certain hazardous occupations for persons under 16. Under the Sugar Act, persons under 14 cannot work and those 14 and 15 can work only eight hours a day.

The Occupational Safety and Health Act of 1970 aims to assure all workers safe and healthful working conditions. All business and industry, including agriculture is covered except those covered by other job safety laws. Employers must meet certain standards to keep their place of employment free from recognized hazards and report occupational accidents and illnesses of their employees. Employees are required to comply with any rules, regulations, and standards that apply to their own conduct. An estimated 1,300,000 farms and all employees on these farms are subject to the provisions of the Act.

Safety laws and regulations increase costs for employers with large numbers of employees more than for family farms with few or no employees. Regulations dealing with employees under 16 years of age usually exempt family farms. A change that would restrict work by children on their family's farm would raise labor costs for those families that had to replace the children with hired labor.

Other Farm Labor Policies

These include workmen's compensation, unemployment compensation, health insurance, legal assistance, and measures dealing with health and welfare of migratory workers. The key issue is how these policies affect the cost of employed labor and the competitive position of individual farm operations. If operations hiring only a few workers were exempt, the added costs would affect large-scale operations more than the smaller ones. Those who hire migratory workers encounter certain costs not faced by those who hire only permanent or local resident seasonal workers.

Labor-Management Relations

The National Labor Relations Act of 1935 and Labor Management Relations Act of 1947 (Taft-Hartley Act) specifically excluded agriculture. But boycott campaigns against some foods and increasing efforts to organize farmworkers' unions have focused attention on these exclusions.

The general labor policy choices in agriculture are (1) to extend the policies as used in industry; (2) to modify and adapt labor policies used in nonfarm industry so they are workable and acceptable in agriculture; and (3) to maintain the status quo and resist all new proposals that would give more benefits to workers and raise cost to employers.

Although many issues remain unsettled, it appears that national policy is moving toward the middle choice (2) above. As already noted, since substituting capital for labor usually requires sizable investment, large-scale operations could lose some competitive advantage over smaller ones where a larger proportion of the labor is supplied by operators and their families. Unionization would increase labor costs so the farm operation that employs a higher proportion of unionized labor would have higher costs per worker than those operations with nonunion or family labor. However, unionization would tend to raise the average level of all farmworkers' wages. A key question concerns the size of operations most affected by unionization and how family workers would be affected. At present family workers do not appear as a major issue in the drive to unionize farm labor.

How unionization would affect the productivity of farmworkers is not certain. Presumably it would rise since efforts to raise minimum wages or broaden coverage to more farms would raise labor costs and discourage employment of the least-productive, lowest-paid workers. Such workers would be forced to migrate or remain unemployed.

Availability of Competitive Sources of Inputs

Policies that restrict availability of purchased inputs or raise costs to some producers more than to others are bound to affect who will be able to enter and stay in business. Past policy on the procurement of inputs has encouraged competitive open markets and efficient distribution, has authorized farmers to form cooperatives, and has blocked some mergers that would reduce competition or give one firm a monopoly position.

The Robinson-Patman Act of 1936 was intended to prevent discrimination by a seller toward competing buyers. Yet it does not exclude quantity discounts as long as all buyers have equal opportunity for these discounts. Differences in prices must be based upon provable differences in manufacture or delivery, resulting from differing methods or quantities in which such commodities are sold or delivered.

Thus the law still permits firms that buy in large volume to gain a cost advantage through discounts and purchasing agent techniques that smaller firms often cannot obtain (3, p. 753). To give some assistance to smaller operators, public policy has encouraged supply cooperatives and helped make their operations more efficient. Such a policy gives them an opportunity to compete with other supply firms and to provide goods to smaller farm operations at costs lower than otherwise would be possible. As a result, some smaller farm operations may be able to keep a sound financial structure. The result is to encourage dispersion of farm production units.

There are specific policy issues regarding availability of each purchased input. For example:

Credit. Policies that affect farmers include state branch banking laws, bank holding company regulations, rules on correspondent relations, lending regulations for federally chartered banks, and sale of bank paper on financial exchanges. The Farm Credit Administration is subject to regulatory law.

Seed. Public and private agencies are continually developing new varieties of seed. Distribution policies for new seed varieties determine the control of production from that seed.

Insurance. Public policies for crop insurance affect its availability to protect against major risks and thus the survival power of various sizes of production units.

Pesticides and fertilizers. Any policies that would control use because of possible effects upon quality of environment could have a critical impact upon production costs, organization, and type of future production.

Farm machinery. Although machinery has greatly increased labor productivity and is larger and more complex, the decline in number of farmer customers has brought a decline in the number of farm machinery dealerships. Fewer firms now serve a much wider geographical area. Present policy gives farm implement companies and other input suppliers freedom to make business decisions about their location including distribution points. As a result the consolidation of input firms and the concentration of farm production units is taking place at the same time.

Input Suppliers in Farming

At the same time that smaller, dispersed farm operators should be concerned about maintaining a competitive source of inputs, input suppliers are mapping strategy to engage directly in farm production. Feed companies have become widely involved in contract broiler, turkey, and egg production. Numerous suppliers have considered custom farming and supplying all their product directly from their manufacturing plants.

These developments, which link production of one or more key inputs directly with the farm operation, may produce an abundant supply of a quality product for consumers. But such changes always trigger other effects upon the independent merchants, dealers, and farmers who previously operated under a more open competitive system of markets for input supplies and the farm-produced agricultural commodities.

The successful outcome of these pilot efforts, permitted under our free enterprise system, could undoubtedly encourage more concentration of production in these integrated efforts and reduce the number of independent dispersed farms as we have known them in the past.

Policies that maintain an open market for production supplies at competitive prices in widely dispersed locations will help maintain widely dispersed numbers of producing units. But any policies that permit a reduction in the competitive market for inputs will also encourage larger-scale concentrated production of agricultural commodities.

The integration of input suppliers with direct farm production is only one part of the changing structure of production and marketing of agricultural commodities. Others are discussed in Chapters 5 and 6. *The movement of outside capital and management into agricultural production raises many policy issues regarding the traditional freedom and independence of individual farm operators. The control of production and marketing of the farm products involved is often at stake.* The final decisions regulating these developments will involve not only economic considerations, but political and social considerations as well.

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5. POLICIES AFFECTING ACCESS TO MARKETS

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Access to markets is essential to a dispersed, proprietary farming system, but traditional access is deteriorating even as the interaction between farmers and markets gets tighter. Those who continue farming face these choices: Preserve access to an open market system or protect market access through group action. Rhodes notes problems in preserving traditional markets and comments on possibilities and problems in both bargaining and cooperatives as a means of group action. If farmers choose group action, new legislation and services will be needed from government to support bargaining efforts and foster democratic processes for group organization and action.

THE SPECIAL CHARACTERISTICS OF FARMING once shaped agricultural marketing institutions. Now this situation is beginning to be reversed *(1, Chapter 7)*. A new agribusiness is beginning to reshape farming. The problem of accommodating farmers and their marketing institutions so as to obtain a mutually acceptable access to markets is becoming the primary concern of agriculture.

Markets are an indispensable part of any economy. Even the highly socialized economies have to perform all the marketing functions and also find it necessary to arrange for some form of pricing and often some form of modified competition between alternate suppliers. Likewise, even in a highly concentrated economy in which a few corporations could dominate farm production and processing, markets would exist at some levels. Corporations so giant that they produce all farm inputs and all farm products, and then perform all the functions of marketing all the way to the consumer are in principle possible, but they seem too unlikely to be worthy of serious consideration at this time. Even they would purchase the raw materials from which they manufactured the "farm input."

Some markets will continue to exist in agriculture. However, the focus in this chapter is: How does access to markets affect the proprietary status or control of production by today's farm people? The preferences of farmers for such status are discussed in Chapter 2. Are conditions of access changing in ways that promote or limit the maintenance of that status? How might public policy be used to protect farmers' access to markets? How can the market status be enhanced even where farmers have lost their proprietary status and are now virtually employees of vertically integrated agribusinesses?

Interaction of Agriculture and Its Markets

In the past, agricultural products were low-valued, often perishable, and produced on thousands of individual farms dispersed over millions of square miles. Quality and quantity were fixed as much by the wiles of nature as by the independent decisions of millions of farmers.

A marketing system was shaped to fit this agriculture. A great network of product assemblers, traders, processors, and wholesalers developed to purchase, assemble, sort, process, and distribute farm products. Some of the agricultural marketing firms became very large but many more remained small local or regional firms. It was a marketing system without an industrial counterpart. *Whereas in industry marketers shaped the product, controlled its output, and designed the market channels in order to market the product, in agriculture production shaped marketing.*

However, this sharp difference is changing. The demands of the supermarket for specific quantities and qualities are being transmitted to processors and producers and are being responded to. *More important are the efforts of various agribusinesses, including feed companies, to tie up markets and sources of agricultural inputs.*

Evolution of Agriculture and Agribusiness

A broader perspective for understanding the changing nature of farmers' access to markets features important changes in both farming and in agribusiness. Some changes in each have been induced by changes in the other, but outside developments have been at work too.

Agriculture

Farms have evolved from fairly self-sufficient units to modern specialized high-production firms, as indicated in Chapter 1. The amount of cash receipts paid out to purchase farm inputs has risen from 10 percent to 75 or even 90 percent in some commodities. The multi-product, general farm has evolved into a specialized producer of one or two products. Farming has become a science with a resulting higher predictability and controlability.

Agribusiness

Agribusiness has had a somewhat similar evolution. Firms have grown as techniques have improved. As production of a particular product became specialized by farm and by area, the nationwide assembly network for that product was shrunk accordingly. Sales volumes per farm often became large enough that it was economically feasible for the marketing firm to buy directly from one farm rather than wait for the small volumes of many farms to be consolidated at a terminal or auction market.

Other important developments took place. The managers of large, modern agribusiness firms began to adopt the same techniques used by other industrial firms. After all, they competed in the same markets for capital and their management personnel were usually educated in the same philosophies and techniques. These firms began to ask how they could design the products and the market channels and control the output to and from farmers. For various reasons it is still not possible to market feed to farmers or pork from farmers in exactly the same way that automobiles are produced and marketed, but the differences are steadily diminishing.

Acquisition Systems

Agricultural marketing firms are giving increasing attention to developing differentiated, brand-name products that will help establish a reputation for them with consumers. They are also seeking ways to develop greater control over the supplies of farm products that they process and market. *Rather than being passive competitors in a traditional agricultural marketing channel, they are developing acquisition systems for obtaining their products.*

A classic question for every industrial firm is: Shall we buy it or make it? Thus, some industrial firms have become vertically integrated as they have begun manufacturing many inputs that were formerly purchased. Likewise, the agribusiness firm asks: Shall we buy eggs in the current open market, sign purchase contracts a month or a year ahead for eggs, contract for their production by farmers who feed our feed to our chickens on a piece-wage basis, or produce the eggs in our own poultry houses? In the production of a significant number of farm commodities, all four of those options are open to a firm building an acquisition system.

Effect of Feed Companies on Access

New practices by farm supply firms including feed companies where livestock or poultry are involved have also affected the access of farmers to markets. For example, as feed companies competed for the business of broiler and turkey growers, they found that they could gain more market security by contracting with growers to use only their feed for a given period or brood. In return, the companies gave credit to the grower. Then a feed company found a grower who would grow on a profit-share basis and another who lacked any risk capital but would grow birds on a piece-wage basis. Thus the dominos tumbled until today virtually all growing broilers are owned by integrators — feed companies, processors, or combinations of the two. Growers no longer have any access to a market for broilers; rather there is a market for broiler-growing services.

Access to markets is in transition. While there are still viable open markets for hogs and cattle, there are few for turkeys and none for broilers. While there is always a market for anybody who wants to grow yellow field corn, the processed market for sweet corn or other special types belongs to those with contracts. In some cases, the growing fruits and vegetables are actually owned by the processor and the "farmer" is being paid rent for his land and custom wages for the particular services that he performs — under supervision — in growing the crops. He sells services rather than sweet corn or tomatoes. These farmers are enmeshed in some of the new problems of access to markets.

Market Deterioration

While vertical integration is the chief threat to traditional access to open markets, it is not the only one. For reasons too numerous to list here, deterioration has taken place in open markets for many agricultural products. Increasingly, prices are being set through individual negotiation or by formula *(3)*. The farmer-sellers in many such transactions have to depend upon their own abilities to translate general market news into the going price for their particular products. Access can be a physical problem. The business failure of the nearby processor in such commodities as sugar beets, processed fruits and vegetables, and even lambs may sharply diminish market access for producers.

Farmers are becoming increasingly concerned about the viability and equity of price-making forces in deteriorating markets. Many of them are examining group action — not to try to raise price, although that might be nice, but rather to insure their continued access to dependable markets with credible price-making.

Farm Size Complications

Market-access problems are complicated by the growing inequalities at the farm level. The widening gap between "the bigs" and "the smalls" in farming is described in Chapter 1. This gap relates in various ways to the problem of access.

The big cattle feedlot may have a dozen buyers a week coming by; the farmlot feeder may be lucky to see one buyer occasionally. The feed companies offer the big farmer quantity discounts and special services, while even the co-op of the little feeder wishes that he would take his business elsewhere. The big producer tends to be more apt than the small one at mastering the techniques of producing the right product at the right time for the right market. Those agribusiness and educational agencies that provide essential information for giving the farmer a proper market orientation find themselves concentrating their efforts with the big farmers where the production is. Perhaps public agencies need to direct more of their efforts toward the smaller farmers (see Chapter 4).

Policy Options

Farmers have options within two alternate strategies. On the one hand farmers may try to preserve access, as individuals, to an open market system. On the other hand, farmers may seek to protect market access through grouping together.

Certain individual prerogatives must be relinquished by farmers in the group approach, so that it is in some ways inferior to the individual approach. However, individual access may not be attainable in some areas.

Many farmers will find it difficult to choose between such alternatives. Some of the policy options may be inconsistent with their general political philosophy and value system. Some options will be strongly opposed by one or more other segments of society. Nevertheless, the various options need to be understood as a basis for democratic choices.

The final choice between a market and a group action system is not an individual one. Farmers will have to struggle collectively even to maintain the market system; otherwise it will be eroded away and then only group action will be left.

Access as Individuals

If farmers are to protect their future as independent owner-operators they must strive via political and economic group action to prevent vertical integration and to maintain openly competitive markets.[1]

Vertical integration is already here in some farm products, is a threat in others, but is very unlikely in the foreseeable future in some others. Legislative prohibitions or hindrances are one proposed way to control integration. For example, farmers might seek passage of one of the long-dormant bills to prevent meatpackers from feeding many of the livestock they slaughter. There are arguments that a plant can be run more efficiently if some livestock can be brought to slaughter at a moment's notice. Such gains in efficiency (which are apparently minor) might be obtained by allowing each packer to feed up to a maximum of 5 percent of his quarterly supply.

More to the point would be a similar limit on vertical integration by feed companies. Again, it can be claimed that the individual efficiency of a given feed mill can be increased by allowing it to own a surrounding captive market of livestock or poultry that will permit the plant to run at full capacity. However, a view of the macro-efficiency of the feed-broiler industry over the past 15 years tends to negate that argument. The industry has kept building more plants and putting out more broilers until a few of the large firms and many of the smaller ones have pulled out because of the low and fluctuating profit opportunities. And yet the cycles of overproduction continue. However, in some instances the preservation of a market system will entail some economic costs.

Contract Differences

Farmers may find that certain types of vertical integration infringe upon their proprietorship much less than other types. The kind of contract used is of fundamental importance. For example, a marketing contract is much like a forward sale. Under a marketing contract, a farmer as a proprietor agrees to market specified quantities of his production in the future at a price fixed either at the time of contract or later.

It might be feasible to develop a market for the contracts themselves. This could be almost as open and competitive as a product market. This kind of contract would give the processor much of his desired market security and also a good opportunity for coordination of quality and quantity flow.

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[1] The Family Farm Act of 1972 proposed another approach to protecting the future of independent farmers.

On the other hand, if the vertical integration involves a production contract, which is essentially an employer-employee relationship, then the farmer's access to market is much more akin to that of a laborer than that of a proprietor. Thus public policy might seek to discourage the production type of contract but accept the marketing contract.

Maintaining Open Markets

If farmers are to maintain their market access as individuals, an open market system and active competition for their products must be maintained. Farmers must have sufficient market intelligence in a form that serves their needs. Market practices must be open, fair, and nondiscriminatory by size of farmer. These needs, of course, are not new. Farmers have demanded helpful and protective market services for a half century. However, problems and situations change and continuing vigilance is necessary.

Market Disruptions

Other impediments in the market place also concern farmers. Some of them are of importance whether farmers seek market access as individuals or as groups. Protectionism in foreign trade policy amounts to denying farmers some access to markets. Interruptions of market flows by union labor are often of particular concern. Grain farmers sometimes feel the impacts of a dock strike upon their farm prices. Grape growers were even more directly affected when secondary boycotts at the retail level decreased the demand for grapes not picked by unionized farmworkers.

It is not necessary to judge the merits of the farm labor struggle to perceive the threat posed by a market-level boycott to even the many farmers who hire no labor. A secondary boycott can be much more damaging for fresh fruit and vegetable growers than for producers of other commodities. Feed grains and wheat are prime examples of commodities where such boycotts appear completely unworkable. Nevertheless, in some products labor problems can prevent farmer access to markets.

The policy problem of the labor boycott is delicate and even contradictory. If agriculture becomes owned and integrated by large corporations, public sympathy for "the farmer" (the corporation) will probably diminish. Farm labor unrest will become more common but the workers would be former independent farmers. *In this sense, the time-worn formula of farm organization teaming up with corporations against unions may need to be reexamined. The justifications for farmer group power are much the same as justifications for labor group power.*

Access as Groups

Farmers are giving increasing attention to obtaining market access via group action. While there are various ways in which group activity may proceed, much of the thinking has focused on either vertical integration through cooperatives or on horizontal bargaining associations.

These distinctions may appear to be somewhat artificial because bargaining associations may regard themselves as cooperatives and because traditional cooperative marketing agencies may vary greatly as to the amount of vertical integration that they seek. However, these distinctions between a vertical and a horizontal approach point up very real differences in the philosophy and approach of existing organizations.

Proprietorship Through Cooperatives

Cooperative marketing was once supported as a means of insuring active competition for farm products and of increasing, however modestly, the returns for these products. While these objectives of getting an extra dollar are still relevant, cooperatives have become more important as a means of preserving the operator's access to markets. Thus many farmers and farm leaders now point to the growing vertical integration in agriculture and urge farm cooperatives "to beat them to it"—"them" being the agribusiness corporations. The growth of the giant dairy cooperatives is a partial case in point.

How far forward should the co-ops integrate? Many proponents are pressing for cooperatives to go even further and to develop widely known brand names for processed foods complete with the advertising and merchandising to get good space on retail shelves. Much can be said for this head-on approach to the threats of vertical integration. One important limitation is that the capital and organizational requirements are often too large to be undertaken except by extremely strong cooperatives.

An alternative overall strategy is for farmers to turn to group bargaining as a replacement for the open market. Policy measures to implement this strategy would include enabling and regulatory legislation to define and normalize the group bargaining relationships within adequate safeguards for all parties including consumers. For example, procedures are needed for recognition of farmer bargaining associations and solution of jurisdictional disputes. Bargaining in good faith needs to be a legal requirement. Safeguards for the public are needed when sanctions are invoked by the bargaining parties.

The Bargaining Approach

The bargaining association, a relatively recent development, is generally unlike the cooperatives in that it is not involved in the "business of marketing products." Rather it represents producers in contractual negotiations over prices and other terms of trade.

Bargaining has been accepted in varying degrees by farm organizations but has been received rather coolly by much of the marketing cooperative movement. The bargaining association may be the only possible vehicle for group action for integrated farmers such as broiler growers. For livestock producers, who have some strong cooperatives but do not possess nearly the strength of the dairy group, a major policy question is whether they should try to achieve power through building up their marketing cooperatives, turn to bargaining associations, or use both approaches.

Bargaining Versus Big Cooperatives

Proponents of cooperatives sometimes argue that cooperatives are the most advantageous and perhaps the only effective way to bargain. *However, one of the most telling arguments for the bargaining association as against the vertical cooperative approach is that in many commodities the latter is simply unattainable within the relevant time span.* It will take too long to build the vast capital structure if a very solid base doesn't already exist.

If cooperatives get big enough to bargain, new problems arise. An urban reporter put one such problem this way:

"Some farmers complain, however, that the 'super co-ops' have become just another kind of conglomerate giant from which they get few benefits. For example, Sunkist Growers, Inc., which dominates 80 percent of California citrus, is a many-layered, pyramid-shaped corporation. Small growers are at the bottom. Contrary to general knowledge, the processors at the top of this 'super co-op' include major private corporations as well as farmer-owned processors. Critics contend that decisions are made and profits are taken at the top of the pyramid, with too little consideration paid to the economic interests of the small grower.

"Iowa farmer Weisshaar is not eager to have his interests buried in such co-ops. 'If I wanted to go into something like that,' he says, 'I would have gone into meat packing or the grocery business. I like being a farmer.' " *(2)*

Can Farmers Control Their Cooperatives?

Policy questions arise about the organization and control of cooperatives. When a cooperative becomes large enough to compete with the corporate giants, is it really responsive to farmers or is it beyond the farmers' capacity to control it? No simple answer is possible without a number of "It depends on. . . ." What about the large producers versus the small ones in such a cooperative? If a cooperative slugs it out with the giants, its emphasis may have to be upon volume, efficiency, and capital. Such concepts as one member, one vote or more emphasis upon people and service than upon volume may be lost in the competitive struggle. Breimyer expressed his concern about these problems: "Professionally managed by persons who frequently have no deep understanding of agriculture, cooperatives have sometimes not only virtually lost touch with their farmer members but have limited their membership arbitrarily, turned to volume voting, provided no procedure by which grievances of its members can be aired and adjudicated, or in other ways departed from the principles that underlay the cooperative movement several decades ago." *(1, p. 300)*

The Individual and the Group

In all group action, including bargaining associations as well as cooperatives, a timeless and universal problem emerges. Who checks the honesty of the metropolitan police? The old Romans asked: "Who guards the guards?" The ancients sought protection in tribes and then they had to develop cultural safeguards for the rights of individuals within the tribe. *Likewise modern farmers, who want to protect their business status via the cooperative, must give proper attention to the individual versus his group.*

Cooperatives in vertically integrated industries such as poultry will probably need contracts with their members. Policy choices here are (1) marketing contracts that preserve most of the entrepreneurship of the farmer and (2) production contracts that pass the decision-making and ownership to the cooperative. The difference in receiving a piece-wage from a cooperative or from a corporation is not immediately apparent. Members must honor their marketing agreements with their cooperatives and cooperatives must insist that they do so. Cooperative marketing can not progress if members avoid fulfilling their contracts whenever a changing market gives them the slightest of economic incentives.

Cooperatives face new and greatly enlarged opportunities and responsibilities in agricultural marketing. As their role becomes greatly enlarged, their structure and behavior become much more central to the welfare of consumers. *When a cooperative becomes farmers' only access to a market, then policy questions about its organization and control assume a far greater importance than* *when it was just another choice in an open market of many competing marketing firms.*

Much of the pro and con discussion focuses upon the cooperatives because the pure bargaining associations operating without cooperative involvement have yet to prove themselves in the eyes of many farmers. Such associations have had limited successes in some areas but for most Midwesterners they probably do not compare with the accomplishments of the dairy cooperatives.

Government's Role

If farmers try to substitute group action for individual action in the market, they will need new legislation and new services from the government. For example, even though the sale of products has been replaced by the sale of farmer services in vertically integrated industries, public market news has failed to make the change. Market news persisted in reporting farm broiler prices after the market had disappeared rather than reporting the contractual terms received by growers. Market information about contractual terms is generally scarce although some bargaining organizations are beginning to provide such information. Nothing close to a perfect market can be expected for farmer services but better market information should improve what is now a very imperfect market.

Free markets, like free societies, require policing. The policing is aimed not only at stopping the dishonest but also at providing means of settling honest disputes. Extending such public policing to contractual integration has lagged. Recently increased scrutiny by the Packers and Stockyards Administration over various relationships between broiler integrators and farmers is a move to close that particular gap. The manifestly unequal bargaining power of the typical individual farmer as compared with the typical agribusiness integrator makes such policing especially important.

Marketing orders — a combined government-private form of group action — have helped to promote stability in markets that were formerly unstable. They appear to have been quite successful in milk and in many fruits and vegetables. Marketing orders in dairy have facilitated the bargaining power of the large cooperatives. We may expect attempts to extend marketing orders to other commodities in which more group action is desired. However, marketing orders will be of little or no assistance to farmers, such as broiler growers, who are selling their services rather than selling farm products to vertically integrated agribusinesses.

Group Conflicts

Jurisdictional disputes among farm organizations and cooperatives are already developing in certain commodity areas. At this stage such disputes, while unfortunate and a real threat to farmer success in bargaining, are probably inevitable. *Procedures that enable democratic choice by farmers within a context minimizing mutually destructive organizational battles should be legislated.* Torgerson argues that there are mutually supportive roles for both the cooperative and the farm organization to play in farm bargaining *(4)*.

Farm organizations deal with a market for their products that, in some instances, can disappear. The processor can choose to be the producer rather than the buyer. In principle, bargaining associations can meet this bypass by selling the services of farmer members rather than farm products, although most entrepreneurs might regard this alternative as second best. An organization that bargained for the sale of both farm products and farm services could include proposed limits on the amount of farm production by processors in its bargaining demands. Whether such a farm bargaining organization could maintain the internal unity essential to such two-fold bargaining is a serious question. Independent farmers currently show little tendency to accept any identity of their interests with those of vertically integrated farmers.

A Threat to Cooperatives?

Farmers may group together to help themselves through cooperatives or bargaining associations. But can large corporations — vertically integrated or conglomerate — become members of these associations and take part as "farmers"? This is a troublesome and very real policy issue. Various family farms have found it useful to incorporate. Such farms are similar to other farms in every other respect and family corporate farmers have long participated as members of cooperatives and bargaining associations. Thus it is difficult to say that all corporations are not farmers. On the other hand, many of the antitrust and other protections and exemptions granted to farmers in the Capper-Volstead Act and in the Agricultural Marketing Act of 1937 quite clearly would never have been granted to powerful corporations.

To the extent that the very strong can seize upon the exemptions and protections granted the weak, the purposes and legitimacy of the exemptions and protections are undermined. Farmers cannot afford such an undermining of the rights granted to cooperatives if they are to protect the access to their markets.

Which Way To Go?

What questions should farmers ask themselves? Some of the appropriate questions have been raised above.

Some farmers may have value systems which definitely commit them to the individual open-market way, the cooperative way, or the bargaining-association route. If they do not, they may want to ask: For my particular commodity, which ways are really feasible? There may be two, one, or none, rather than three, feasible ways. Can an open-market individual access system be maintained? The dispersion of power in a dispersed agriculture is discussed in Chapter 2 and has much to recommend it to society. But will government protect dispersed agriculture from a corporate takeover, direct or integrative? Will farmers accept the discipline of a group approach? It is ironic that many turkey producers who voted against the discipline of a national turkey-marketing order soon found themselves under a greater discipline as integrated growers.

Other questions include: What is the present base in terms of cooperatives or bargaining groups? Which approach seems more likely to work for this commodity and this group of farmers? What will be the public's perception? Will giant bargaining associations or cooperatives be regarded any differently than giant corporations. Already some college students see "agriculture" as migrant workers being exploited by giant agribusiness corporations.

Almost inevitably, whether the route is individual or group, the bigs will have more power, exercise more leadership, and receive more benefits than the smalls. Yet it seems clear that young people are demanding more equality of opportunity and more "distributive justice" than did their elders. Thus any big disparity of wealth, income, and economic opportunity in agriculture may come under much more critical scrutiny in the future. Perhaps a little less concern with microefficiency and a little more concern about equality of opportunity will have to permeate the policies of all institutions in agriculture, including market institutions.

Some of the special problems of access to markets for integrated producers have been discussed. The markets for farmer services in raising broilers and turkeys and growing vegetables for processing are the most imperfect in agriculture. One cannot put one's services in a truck and ship them off to an alternative market when one is dissatisfied with the present buyer.

There have been reports of blacklists of farmers who are judged to be too interested in promoting competition for their integrated services. Vertical integration is assumed to be a one-way street. There is no turning back to an open market and independent production. Integrated farmers are prime candidates for bargaining associations as a means to redress the lopsided balance of power. However, the organization of economically weak individuals scattered across the nation is difficult. Moreover, a considerable number of small, independent farmers are ready to seek the security of contracts if given an opportunity by the integrators.

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6. POLICIES AFFECTING CAPITAL ACCUMULATION AND ORGANIZATIONAL STRUCTURE[1]

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Besides land, knowledge, and markets, a collection of other influences also affect the structure and control of agriculture. Risk and its abatement, the mystifying mixture of income tax rules and regulations, payment limits and small farm benefits in land retirement and direct payment programs, pollution control methods — all these have an actual or potential effect on the kind of farming system that will prevail in the future.

Political power and the use made of it by rural people may be the most powerful force of all in influencing policies that will affect capital accumulation, the organizational structure of agriculture, and the control of decision making. Although the tally of farm area Congressmen is down, the critically important urban vote is generally sympathetic to the problems of rural areas related to rural poverty and unemployment.

GOVERNMENTAL POLICIES AND PROGRAMS, as well as social forces, influence the changing organization of agricultural production. Such policies may be designed to influence the structure of agricultural production toward more dispersed organization or encourage more concentration of the producing units. They may do so by design or by unintended side effect. Policies discussed in this chapter are those related to risk reduction, federal income taxes, federal farm program payments, rural development, and pollution control.

Price, Income, and Natural Hazard Risks

Public policies that affect farmers' risk and uncertainty will influence the organizational structure of agriculture. "Farming is a risky business" is a statement often made and generally accepted. Risks include price fluctuation, uncertainties in farm input and product markets, income variability, and natural hazards such as adverse weather and insects and diseases affecting crops and livestock. Risk and uncertainty can influence the use of farm resources and how they are organized in the farming industry.

How to adjust to or offset risks has been an important consideration in the organizational structure of the farming sector. It has affected economic adjustments on farms and in the farm supply and market systems and it has brought about public policies and programs specifically designed to reduce risk.

The risks and uncertainties facing farm firms influence the allocation of resources within the firm and within the agricultural industry. They limit the availability and use of capital and credit, they restrict or distort the investment of capital for farm expansion, and they decrease the effectiveness of management.

Credit is restricted because of increasing risk. As a firm expands by using credit, the possibility of losing its equity becomes greater. Added uncertainty increases the probability of loss. This concept restricts borrowing by the expanding farmer and also lending by the credit agency. Higher risk may also encourage diversified ownership under a corporate structure. Potential loss can be spread over many owners.

Risk and uncertainty affect investment of capital, whether it is equity capital or credit. Expansion of farm size, specialization of farm enterprise, adoption of capital-using technology, and other resource adjustments are affected by risk. Reduction of risk encourages capital investment.

Management decisions may be more subject to error under conditions of higher risk and uncertainty. Greater uncertainty of output and prices leads to more management errors in predicting economic returns and may thus limit expansion of the farm business.

Economists are uncertain about whether reduction of risk helps large farms more than small ones. Policies that reduce risk and uncertainty will tend to encourage adjustments of agricultural resources toward larger farms, more rapid adoption of technology, and more specialization of production. However, even though risk-reducing policies may make possible greater concentration of production, they may also tend to maintain production by smaller units.

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[1] Contributing authors for this chapter were Paul H. Gessaman, University of Nebraska; Neil E. Harl, Iowa State University; James B. Johnson, United States Department of Agriculture; Everett E. Peterson, University of Nebraska; W. Fred Woods, Economic Research Service, United States Department of Agriculture.

Reducing crop risks. The Federal Crop Insurance program is designed to reduce risk from crop losses. Private companies also supply crop insurance to reduce risks.

Farm price support programs have reduced risk and uncertainty related to prices and income from production of major crops. Cropland diversion, acreage allotments, and commodity storage have adjusted the supply to stabilize prices. Price support loans and commodity payments have further stabilized prices and income. Commodity payments are based on normal production. Thus a farmer may have a crop failure and still receive a significant part of his expected income. Farm programs, in effect, provide for forward pricing and income.

Reducing livestock risks. The dairy industry has price supports on manufacturing milk and federal market orders in major milksheds. These programs have a strong stabilizing effect on dairy prices and income. Price stability of other livestock enterprises is indirectly influenced by the stabilization of feed-grain prices and of the agricultural industry as a whole.

Farm size and program benefits. Price supports and commodity payments have been based almost entirely on acres and output. The larger the farm and its output, the greater are the benefits of the income support programs in terms of dollars received. These program benefits reduce the risk of committing the resources of the expanding commercial farm operations.

As farms become larger and more commercialized, they become more sensitive to price fluctuation, especially price declines. They use a higher proportion of capital to labor and of variable capital to fixed capital. They also use more purchased inputs and a lower proportion of farm-produced inputs such as operator labor and equity. Therefore they operate on a lower margin of return over direct costs per unit of sale. *Stable prices and forward pricing under farm programs are highly important for the large farms and their large commitment of resources.*

Resource values. Reducing risk and uncertainty under farm programs increases the value of the resources. Consequently, with lower risk, farm programs have contributed to rising land values.

Farm programs and price stability encourage investment in output-increasing technology. The larger, expanding farmers are usually in an advantageous position to adopt technology. They also tend to set the price of land and rental rates. Thus land tends to be overpriced for the average and marginal farmers, which means they may be economically excluded from farm expansion. Many smaller farmers become comparatively worse off as their costs rise but their gross income remains stable.

Government programs that reduce risk through stabilization of prices and income are available to all farmers. However, they appear to be of more economic benefit to the larger, expanding farm than to moderately sized and smaller farms.

Adjustments for Risk

The structure of today's agriculture and its related institutions has been influenced by risk and by adjustments to reduce risk. Government policies have had an effect on these developments.

Risk and concern about risk has influenced the degree of specialization as compared with diversification on individual farms. It affects the availability and sources of equity and debt capital for agriculture. Institutions such as commercial insurance and the futures market have been developed to reduce risk. Farm producers and supply or market firms have developed contractual arrangements to reduce, share, or transfer risk. Farm lease agreements have been adapted to sharing risks between farm operators and landlords. Income tax regulations and other laws affect the incidence of risk.

Although most of these arrangements are in the private sector of agriculture, public policies can influence their development and use. Large commercial or industrialized farms may have more ability to utilize various methods of reducing risk including the various private sources. These include easier access to capital sources, contractual arrangements, price stabilization, specialized insurance, and other approaches. *If the public wants to assist the dispersed type of farm in reducing risk, then public policies should continue to be made available and developed for the dispersed farms.*

Income Tax Policies

It has been argued that, at least theoretically, income tax policies should not influence economic decision-making. If the equitable generation of revenue is the only objective of an income tax system, an important criterion for evaluating a taxing system would be the absence of influence on economic decisions.

However, the income tax structure as part of national policy has become an important tool for influencing economic decision at least at the Federal level. In the past decade, many major income tax changes have been motivated by fiscal considerations, but income tax incentives have also become a means to aid programs for an improved environment, accelerated capital investments, and increased soil and water conservation.

The flexibility and universality of the income tax, as well as its inherent economic incentives and disincentives, commend income tax as a key policy variable. Thus the income tax framework appears destined to serve multiple masters with relatively frequent and substantial changes in prospect.

Analyzing Income Tax Preferences

It is almost an article of faith in some circles that income tax policy has systematically favored large-scale firms over small firms, particularly in agriculture. Substantially greater analysis is required before conclusions may be drawn as to the direction and magnitude of tax preferences.

The size and scale of firms are seldom important variables in the imposition of the income tax. Although size and scale have economic significance for legal or tax purposes, the terms are generally not sufficiently precise to serve as touchstones for regulation or taxation. Rather, legal and tax rules have been based upon such variables as (1) method of firm organization (regular or Subchapter S corporation, general or limited partnership, simple or complex trust, or sole proprietorship); (2) type of income involved (ordinary income, capital gains, or tax-free income); (3) level of income involved (graduated rate for sole proprietors, partners, trust beneficiaries, and shareholders in a Subchapter S or tax option corporation, but a two-step rate for regularly taxed corporation); and (4) occupation of the taxpayer (for example, farmers as taxpayers enjoy certain special privileges such as cash basis accounting). Any determination of tax preferences requires specific assumptions about all four variables.

To say that large-scale farms have tax advantages not enjoyed by smaller firms has meaning only if method of organization, scale (gross sales, net income, acreage), nature of the income mix, and level of taxable income is also specified. Without these additions the statement that large farms have advantages not enjoyed by small farms is meaningless. The statement invites the question: Tax advantages compared to what? Although no unequivocal answer may be given to questions about tax advantages for large or small firms, the relevant variables are discussed below.

Capital Gains Versus Ordinary Income

Although heavily criticized in recent years, the capital gains-ordinary income dichotomy is well established in tax policy and will probably continue to exist for some time. The capital gains concept is responsible for many tax-avoidance or tax-minimization efforts as taxpayers at all income levels try to have income taxed at the preferential capital gains rates.

Capital gains treatment. The preferential treatment of capital gains income, which is widely known, applies to individual taxpayers of all income levels. But individual taxpayers in the higher income brackets receive the greatest relative benefit. Basically, capital gains are taxed in one of two ways and the taxpayer makes the choice. The entire capital gain may be taxed at a flat rate (25 percent on the first $50,000 of gain, 35 percent on all over $50,000), or 50 percent of the gain may be deducted with the other 50 percent taxed as ordinary income on a graduated scale. Obviously, few high-income-bracket taxpayers elect the 50-percent deduction and few low-income-bracket taxpayers elect the flat rate tax. Persons in a partnership, Subchaper S corporation shareholders, and trust beneficiaries all utilize the rules for individual taxpayers.

Regularly taxed corporations handle capital gains quite differently. Capital gains income is not eligible for the 50-percent deduction alternative. Corporate capital gains are taxed at flat rates of either 22 percent (if the corporation otherwise pays tax at the 22-percent rate) or 30 percent. Corporations make relatively poor organizational devices if the objective is minimization of tax from capital gains.

Income eligible for capital gains treatment. For farmers and farm investors, the major assets normally receiving capital-gains treatment include farmland and buildings, machinery, breeding stock, and dairy animals. Other assets, such as grain, hogs produced for market, and feeder cattle generate ordinary income which is fully taxable at regular income tax rates.

A substantial incentive has existed, particularly for high-tax-bracket individuals, to invest in assets producing capital gains rather than ordinary income. The incentive has been even greater for depreciable assets eligible for capital-gains treatment such as buildings and breedings herds. Depreciation is deductible from ordinary income and, in effect, creates additional capital gains taxed at a lower rate.

To lessen the incentives inherent in such tax policy, the Congress has taken several steps in the past decade to "recapture" gains representing depreciation previously claimed as ordinary income. In 1962, rules were imposed for recapturing gains on sale of personal property (except livestock). The concept was extended to depreciable real property in 1964.

In a specific effort to reach "tax-loss farming," Congress in 1969 moved in additional directions to lessen the incentive to convert deductions from ordinary income into capital gain at a later time. These included (1) recapture of depreciation on livestock, (2) recapture of soil and water conservation and land-clearing expenses, and (3) creation of an Excess Deductions Account converting capital gain into ordinary income on sale of certain types of farm property if the sale had been preceded by operating losses.

Despite efforts at limiting the conversion of ordinary income deductions into eventual capital gains, a relative advantage still exists for high-income individuals to report gains as capital gains where possible. The same basic rules for reporting capital gains can be used by lower-income individuals. The advantage is inherent in the capital-gains concept.

Tax Rates

The rates of income tax imposed on capital for expansion can have an important competitive effect on firms in the expansion phase of their life cycle. Essentially, the differential tax rates may be explained by (1) the type of taxpayer (individual, partnership, or corporation) and (2) the tax bracket of the particular taxpayer.

Marginal rates of tax vary sharply, from 14 percent federal income tax for low-tax-bracket individuals through a graduated tax of 70 percent for high-tax-bracket individuals (50 percent on earned income). These rates apply to individual taxpayers, partners in a general or limited partnership, and shareholders in a tax-option or a Subchapter S corporation. These taxpayers are viewed as ultimate consumers of taxable income.

By contrast, a regularly taxed corporation pays federal income tax at a 22-percent rate for up to $25,000 of corporate taxable income and 48 percent above that level.

These rates may appear to be more or less advantageous than the tax rates for individuals, depending upon the relevant tax rate. A 14-percent-tax-bracket individual has nothing to gain (and in fact may pay more tax) if part of his income is taxed as a regularly taxed corporation. A 50-percent-tax-bracket individual, on the other hand, may obtain a substantial income tax advantage by creating a new 22-percent-tax-bracket corporation to which a part of his income would be taxed. At least the advantage is clear if the income is destined for expansion of the firm.

Any advantage of the corporation in terms of more after-tax dollars for expansion is tempered by imposition of a second tax as corporate income is ultimately distributed to shareholders. Either a tax on dividend income or a tax on liquidation distributions ultimately awaits the shareholder of an expanding corporation unless he is willing for corporate income to be used for expansion.

Cash Versus Accrual

Although farming would seem to require accrual accounting under the universal test of whether inventories affect income materially, farm taxpayers of all types using various methods of organization have been permitted to report income using the cash method. In part, such use of cash accounting constituted recognition of the limited capabilities of accounting systems used by farmers. Despite improvements in record keeping and attainment of a high degree of accounting sophistication by some farmers, particularly those making use of computerized accounting methods, the cash reporting option has continued to be used.

With cash accounting, farm taxpayers enjoy substantial advantages over accrual taxpayers. One advantage is that increases in inventory are not subject to income tax. Gain on assets is recognized only when items are sold. This permits buildup of inventories without the necessity of tax payment. If the increased inventory, such as from a beef-cow herd, is held by an individual taxpayer until his death, no income tax is ever paid on the gain involved. A second advantage is that on sale of raised breeding animals the entire selling price is treated as a capital gain if held for 24 months. For accrual taxpayers, only the excess over the last inventory value is eligible for capital gains treatment.

Special deductions. Some rules for income tax deductions peculiar to farmers make no distinction as to size or scale of the taxpayer. These include the opportunity to deduct rather than amortize expenditures for fertilizer and lime, to report commodity credit loans as income when a loan is received or when the crop is sold, to deduct soil and water conservation expenditures rather than adding such expense to the tax investment in the land, and to file estimated tax returns (not required if return filed by March 1).

Other provisions uniquely applicable to farmers favor those with lower-incomes. For example, expenses incurred for clearing land to make it suitable for use in farming may be deducted currently rather than being added to the basis of the land. However, current deductions are limited to $5,000 or to 25 percent of taxable income from farming, whichever is less. This provision reduces tax benefits of rapid land clearing by farmers with taxable income of $20,000 or more per year.

Effect of Death of Individual on Accrued Gain

Under current law, a substantial income tax incentive encourages individuals to retain ownership of heavily appreciated property until death. Upon the death of a property owner, the income tax basis for property held becomes equal to fair market value as of the date of death or as of the ultimate valuation date up to six months after death. The result is that the tax on the potential capital gain in the property is eliminated.

This feature of income tax law has been criticized as inequitable and as favoring principally shareholders and landowners. Repeal has been urged in recent years.

In addition to eliminating income tax on appreciated property held until death, this income tax provision discourages lifetime gifts of heavily appreciated property (with gifts, the donor's income tax basis carries over to the recipient) and encourages high valuation of property at death, if the estate tax is small or does not apply.

This feature of current income tax law often affects corporations less favorably. At the death of a shareholder, his stock receives a new income tax basis and the accrued gain in the stock is eliminated. However, the property underlying the stock — owned by the corporation — is unaffected by the death of a shareholder. Thus the advantages of a "new depreciation start" and no gain or little gain on post-death sales are not similarly available for corporate asset ownership as they are for individuals.

If all "individuals" engaged in farming were individuals, at low-income levels, and receiving only ordinary income, it would be a relatively simple task to compare their tax burden with nonfarm investors operating as corporations, at high-income levels, and receiving only capital gains income. Obviously, such is not the case. As the assumptions mentioned above are relaxed, generalizations as to the relative income tax burden become less and less meaningful.

Farm Program Payment Limits and Small-Farm Benefits

The scale of annual federal farm program payments indicates that allocation of these funds may have a significant impact on the organizational structure of agriculture. Direct program payments to farmers have been over three billion dollars annually during recent years. Allocation of these funds can aid or hinder whatever public policy objectives the nation might have regarding the organizational structure of agriculture. For example, limits on the size of payments to larger farms and special concessions to smaller farms would tend to strengthen a dispersed agriculture rather than encourage a concentrated agriculture.

Payment Limits

Public support for farm programs over the years has been in part based on the concept of helping the "average" farmers maintain adequate income. Limitations of payments to large producers have been debated periodically since the 1930's. Statutory or administrative limits on the size of Agricultural Conservation Program (ACP) payments (now REAP payments) have been in effect from time to time. Currently the limit is $2,500 to any one individual. Payment limitations were a pa[illegible] the Soil Bank Program of the 1950's and the Cropland Conservation Program of the 1960's.

During the 1960's, federal farm programs shifted to more direct payments to adjust crop output and to maintain grain and cotton producers' incomes under lower price support levels. The very large payments to some large-scale farm operations resulted in public criticism and support for payment limits.

A limit of $55,000 per program to persons participating in either the cotton, feed-grain, or wheat programs was included in the Agricultural Act of 1970. In 1970, 1,232 persons received payments in excess of this amount. Most of these were earned for participation in the cotton program. Very few persons are subject to the limitation under two or more programs. In 1971, only 466 producers had payments reduced to the $55,000 limit.

These program payment limits have not had the economic effects that some may have envisioned. Large-scale farmers have been able to restructure their operations so as to minimize the adverse effect of payment limits. Some common restructuring steps have included subdivision of large farms, leasing of parts of crop allotments for cash rent, and formation of partnerships.

Farm programs oriented primarily toward cropland diversion and supply adjustment through incentive payments must include participation of most commercial farmers to achieve their objective. Therefore, at some lower level payment limits may conflict with the major objective of supply adjustment.

If the policy objective is to maintain a dispersed agriculture, then program payment limits could be designed with that purpose in mind. Proposals on limits have included $20,000 per farm, $10,000 per program per farm, and other variations lower than present programs. Restriction on the permitted restructuring mentioned above would impose further limits. Program payments tied to land-use policy could be designed to discourage very large farms and to encourage less intensive use of cropland.

The present program, with payments based on commodity output and high limits per farm, tends to encourage the trend toward larger farms. The public, through Congress, needs to decide on its policy goals related to the organizational structure of agriculture and then decide whether program payments are to be used toward achieving those policy goals.

Small-Farm Benefits

Under present programs, the stabilization of farm prices benefits nearly all farmers. The direct payments under commodity programs benefit farmers in proportion to output. Farmers with low-volume commodity production receive small payments. For example, in a recent year 72 percent of producers receiving payments received less than $1,000 each, or 21 percent of total payments to all farmers.

Some of the commodity programs of the 1960's provided special treatment for farmers with small allotments. The Agricultural Act of 1970, however, contained a small-farm provision only for cotton. Small-farm provisions will probably not figure prominently in future farm commodity programs because commodity programs are not highly effective in helping small, low-volume farmers.

Providing adequate family income is the major problem facing many low-income farm families. Some are helped through general public-assistance or welfare programs. Many small, low-volume farmers have off-farm employment to provide adequate income. However, in some rural areas these opportunities are limited.

Policy proposals have included providing direct income payments to low-income farm families. These payments may not be related to farm commodity production but they would bring family income up to some minimum level. Such payments could be further adjusted to provide income payments only to older farmers who have little opportunity for other employment. This would overcome the objection of payments being used to perpetuate uneconomic farm units.

Policies and programs could be designed to help maintain small farm units. Such programs would help keep people in rural areas but also might keep some families on lower incomes than they could earn elsewhere in the economy. However, small farmers produce a relatively small share of the nation's farm output and this approach may be of limited importance in influencing the overall organizational structure of agriculture. Policy decisions need to consider alternative approaches to helping low-income farm families in the context of how they might relate to the future structure of agriculture.

Pollution Control

Several types of potential or existing agricultural pollution have been identified including crop residues, soil sedimentation, and livestock wastes. Excessive use of chemicals and fertilizers in crop production is one source of pollution. Livestock wastes are a more serious source of pollution because of the expansion of larger confined feeding operations. The public is becoming increasingly concerned about this kind of pollution. Federal and state policies are being proposed and developed for pollution control.

Current attention from various government regulatory agencies is focused on livestock-waste pollution abatement, primarily because confined feeding operations are considered potential sources of pollution amenable to control.

Policies vary among states in the North Central Region. Water-quality regulations often apply to livestock operations even though they are not specifically mentioned. Iowa, Indiana, Minnesota, Kansas, and Nebraska have passed legislation that requires certain classes of livestock operations to register with state regulatory agencies. Registration entails providing a detailed breakdown of current and proposed operations including the number and type of livestock confined and the location relative to any watercourse that is receiving or can receive livestock waste runoff. An Ohio solid-wastes law specifically includes agricultural wastes but has been interpreted to exclude the typical small-farm operations and to presently include only large-scale livestock operations. Other states are proposing statutes that will enable a direct approach to livestock-waste pollution problems.

Implications for Livestock Operations

Current regulations and registry requirements focus on larger-capacity livestock operations. Agronomic research suggests that large livestock operations that assimilate large volumes of feedstuffs on limited land bases create a plant nutrient-land base imbalance. The Environmental Protection Agency also recognizes that waste-handling problems become progressively greater as feedlot size increases.

The large-scale enterprise is still a minor part of the livestock industry in the North Central Region. In 1970, over 75 percent of the Region's fed beef was marketed from lots with less than 1,000-head capacities. In 1964, less than 10 percent of the dairy herds had 50 cows or more. However, the larger enterprises are increasing in number.

Recognition of the diversity of firm sizes within the Region's livestock industry is necessary when considering alternative methods of pollution control. Suitable methods of abatement may vary directly with firm size and factors related to firm size such as land availability, livestock buildings, and handling facilities. Under current regulations, additional variable costs attributable to waste abatement have not seriously affected the viability of any particular size of firm or placed producers within a particular state at a competitive disadvantage. In fact, certain producers have qualified for ASCS cost-share monies to offset a portion of the capital outlay necessary for the acquisition and installation of retention structures and manure storage facilities.

However, the enforcement of more stringent regulations that do not distinguish among firm sizes and their associated resource bases could impair the viability of certain sizes of livestock firms in certain production areas. For example, if some type of complete solid-waste treatment system were required, the initial capital outlay may be a prohibitive cost to 500-head beef-feeding operations. But it may be economically feasible for a 20,000-head operation.

Another consideration is a possible difference among states on pollution-control policies. An added cost to comply with regulations in one state that do not apply in other states would place those livestock producers subject to regulations at an economic disadvantage. This may indicate a need for federal guidelines on policies affecting livestock producers. Such federal guidelines, which would be primarily applicable to large-scale livestock enterprises, are now under joint consideration by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency.

There seems to be general agreement that policies may be needed for control of pollution from livestock wastes. As policies are developed, recognition needs to be given to their impact on size of the livestock operation and on enterprises in different states or locations.

Rural Development Policies

Rural development has gained prominence in recent years as increasing attention has been directed to the problems of the rural areas of our nation.

Rural development policies are primarily concerned with improving employment opportunities, incomes, and the quality of life in rural areas. *This section will be restricted to rural development policies that are activated or made effective by group or community decisions.*

Employment and income opportunities are usually tied closely to industrial development. Quality of life factors, on the other hand, are usually linked to the availability and accessability of public services and to environmental quality.

Coherent national policies on rural development have not yet been activated. Numerous programs of limited scope have been offered, but these have not made possible the development of "... a sound balance between rural and urban America"[7] which has been a continuing goal and to which Congress committed itself in the Agricultural Act of 1970.

Consequently, communities have experienced widely varying success in rural development efforts to date. Some have made substantial development progress while others have not only failed to develop but have declined — sometimes rapidly. Nevertheless, community development programs of various kinds will continue, and they will have effects upon the agriculture which they touch.

Impact on Agriculture

Effective rural development policies resulting in off-farm employment opportunities would make possible the continued existence of dispersed agriculture which is not, of itself, economically viable. Farmers could combine part-time farming with nonfarm employment and maintain their rural residence. In the short run this could, and probably would, slow farm consolidation. However, in the longer run these noneconomic units might be combined by rental arrangements into larger units built up of small rental parcels, thus leading to concentration of production under tenant arrangements.

If improved employment opportunities resulted in substantial in-migration of workers, all of agriculture would benefit from more accessible markets for inputs, improved viability of social and economic institutions, and possibly improved markets. Increased competition for factors of production and possible conflicts in land use, and a fairly high rate of social and economic change, would almost certainly accompany this type of rural development.

Changes in the structure of institutional arrangements of support organizations such as Extension Service, Soil Conservation Service, the land-grant college system, ASCS, and others affected by revenue sharing and governmental reorganization could substantially alter the viability of dispersed commercial agriculture. Such changes would probably lead to increased concentration in agriculture if the resulting changes interrupted the flow of information, funds, and technical assistance to the small and average sized farms, thus weakening the competitive position of these units. Larger concentrated units could probably more successfully secure these services from alternative sources and thus would be more successful in adapting to changing conditions. Rural development credit policies having substantial import on credit availability, could have similar affects.

Better public services and facilities combined with more equitable participation by rural communities in federal grant and loan programs should lessen the disparity between opportunities and amenities in rural and urban areas.

To some degree all these policies would add somewhat to the viability of a dispersed agriculture. Yet it is also time that some of the benefits of a rural development credit package would be capitalized into land values, requiring more financing for entry into farming than is presently the case, thus weakening or reducing the long-run viability of dispersed agriculture.

Dilution of farmers' role. In many areas effective rural development would accelerate the urbanization of the countryside. In so doing, it would provide an adequate population base upon which many amenities and services can be provided. However, increased rural population will result in competition for resources, conflicts in land use, the dilution of political power of those engaged in agriculture, and demise of many social structures and institutions held over from the "good old days" of the past.

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[7] Section 901 (a), Title IX, Agricultural Act of 1970.

Environmental policies. Environmental control will become an increasing part of rural development. Will the cooperation and conformity to rules that will be necessary have different impacts upon one kind of agriculture than another? The answer depends on the participation and adaptability of a dispersed agriculture. If that kind of agriculture cannot, or will not, participate, the advantage will go to a concentrated agriculture. For the latter, by its internal administrative mechanism, is comparatively well equipped to accept and enforce practices that will protect the environment. More information on livestock pollution is presented above.

Rural Development in Perspective

Rural development and a viable dispersed agriculture can supplement each other. Employment opportunities would give small farmers more options, such as part-time farming or taking full-time off-farm employment. Farmers may have improved access to farm inputs, including supplies, services, credit, and labor, as well as to improved marketing services. These factors would help many farmers adjust to the changing progressive economy. On the other hand, some of the social discipline involved in community development, particularly in environmental protection, will present a challenge to a dispersed agriculture and might prove better adaptable to a concentrated agriculture.

Political Power and Its Use

Public policy is the product of political activity by the many groups in our society with political influence. Because of conflicting goals among interest groups, public policy decision-making almost invariably requires compromise. Use of political power by farmers and other concerned groups determines which public policies affecting agriculture are selected and how programs are administered. Agriculture's political power structure evolved over the years to support policies and programs that facilitated the industrialization of agriculture and protected the economic interests of commercial farmers. Until recently, agricultural policy and programs have emphasized and rewarded efficient production with little concern for the "people left behind" or for those who migrated to urban areas.

The Political Power Structure of Agriculture

Agriculture's political establishment includes farmers and their general and commodity organizations, agriculture committees of the Congress, the U.S. Department of Agriculture and its related organizations, land-grant colleges and universities, and agribusiness-input suppliers, marketing firms, and bankers. These diverse groups do not agree on all agricultural policy issues. For example, input suppliers and marketing firms tend to favor high-volume production while farmers accept restrictions on production for better prices and incomes. However, alliances and coalitions are formed to work toward common policy goals.

Major federal farm programs resulting from agriculture's political activity are research and education, soil and water conservation and development, credit, rural electrification, market regulation, and programs for farm homemakers and rural youth. Benefits from these programs have accrued mainly to commercial farmers as would be expected from the composition of agriculture's political power base. These programs help make it possible for consumers to enjoy an abundant supply of nutritious, relatively low-cost food. Young people, raised and educated by rural families, are a subsidy-in-reverse to urban areas exceeding in value the cost of all federal farm programs since their inception.

Other programs administered by the USDA, such as food-stamp programs, meat inspection and grading, regulation of pesticide and hormone residues in food, and maintenance of the national forests primarily benefit nonfarm people. Although farm leaders may protest that the cost of these programs is regarded erroneously by many people as benefits to farmers, programs mainly for farmers gain more political support when consumer programs are usually included in the farm legislation package. Agriculture's political power might be weakened seriously by transfer of these consumer programs to other federal agencies or by a government reorganization that would remove certain functions from the USDA.

Sources of Power

Agriculture will retain considerable political strength from its traditional sources in future agricultural policy development, but the old power structure will not be able to function as it did in the past. The economic, social, and political environment is constantly changing. Stability will be as abnormal in the next 100 years as in the past century. Some of the old attitudes, ideologies, and institutions have outlived their usefulness. Agricultural leadership needs to adjust to the political realities of the 1970's or suffer further loss of support. Major obstacles to change are prejudice, indifference, ignorance, lack of initiative, and fear of the unknown.

Political power in the United States is largely based on people and property. Farmers have a relatively smaller political power base as our economy grows. Our population is now more than 95 percent nonfarm and will become even more concentrated in large metropolitan areas unless this trend is reversed by massive relocation and dispersion efforts. Reapportionment of the Congress and state legislatures according to the one man one vote principle shifts political strength to cities and suburbs after each population census. Rural domination of state and local governments will soon be gone as it is already at the national level. Few strategic positions in Congress are presently held by representatives from predominantly rural districts and few such districts remain. Executive power has increased relative to that of Congress. At times the Office of Management and Budget (formerly the Bureau of the Budget) seems to have more influence on farm program administration than does the Secretary of Agriculture.

Commercialization of agriculture — the end result of individual farmers' decisions, application of technology, and past public policies for agriculture — assures an abundant supply of low-cost food to American consumers which is taken for granted. But most urban people agree that farmers are entitled to fair returns for their labor, management, and investment. Reports by Presidential commissions, television documentaries, and magazines and newspapers have focused public attention on malnutrition, rural poverty, and the plight of the migrant farm worker. Critical publicity about the high percentage of farm program payments made to larger commercial farmers, however justified on other grounds, may divert attention from the fact that programs based on commodities and land cannot also solve problems of malnutrition, rural poverty, and declining small towns. High incomes on commercial farms no longer assure prosperous rural communities with even minimally adequate private and public services.

Changing Policy Issues

The political, social, and economic climate is such that urgent and reasonable public policy goals of other rural people must be recognized even though such goals may be inconsistent with those of commercial farmers and agribusiness.

Commodity programs will continue for several years provided that farmers do not press for changes that significantly increase government costs. Agricultural credit programs will be modified and improved to serve the financial needs of modern agriculture better. Farmers will be encouraged to bargain collectively for better terms in buying and selling. Agricultural trade policy will emphasize more aggressive efforts to maintain and expand commercial exports of farm products so that the U.S. may no longer play the role of residual supplier to the world.

Policies and programs to improve the quality of rural life will finally be separated from commercial farm policy. Rural people will participate more fully in programs to provide better housing, community facilities, health services, education, employment opportunities, and a minimum family income. The economic and social condition of hired farm workers, especially migrant labor, will improve because urban and labor representatives in Congress have the political power to extend protection of labor legislation to farm workers.

Other policy issues affecting farmers, but of even more concern to all people, and already on the legislative, executive, and judicial agenda of national, state, and local governments include food and nutrition programs, soil and water conservation, control of air and water pollution, protection of wildlife, and expanding demands for recreational facilities and space for living.

Decisions made on these public policy issues through our political process, along with private decisions, will have much to do with "who will control U.S. agriculture." The decentralized structure of political power can be used by rural people to achieve their goals. Current pressures and the fluid political situation provide the opportunity to develop effective, responsible public policies for rural America with broad-based support. The price of political support is political participation. Farmers and other people must become more actively involved in politics if they are to gain enough political power as a minority group to have any significant influence on public policy.

7. CONTROL OF AGRICULTURE IN PERSPECTIVE—A SUMMARY

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This brief chapter brings together the highlights of previous chapters. The authors emphasize that unless present policies are substantially changed, the forces now in motion in agriculture will continue. They point out again that a more concentrated agriculture would conform to farmers' desires for more security and less risk but would also conflict with their wishes for proprietary independence. Policy choices still remain open that would assist in maintaining some dispersion of farm production in those areas where dispersion still exists. Farm operators, input suppliers, and marketing agencies that favor traditional dispersed agriculture should focus their efforts on maintaining and encouraging such policies.

MANY FARM OPERATORS are expressing increasing concern over the possible future direction of agriculture. Their concerns are primarily related to what might be classed as (1) the rapidly increasing size of farms and (2) the pressure for coordination of agricultural production by forces outside of farming. Naturally technological developments have influenced both these developments. The authors of this publication have listed and described how various factors have influenced and are influencing the production, processing, marketing, and distribution of food and fiber.

Pressure for Increased Size and Coordination

Farm operators would undoubtedly be concerned with just the trend toward increased farm size even if there were no pressures for increased coordination from outside agriculture. Similarly, they would be concerned with the pressure for increased coordination of production with other steps in the food chain even if there were no increases in farm size. However, producers are faced with a combination of these two developments.

To sort out all the factors and their direct impact on either increasing farm size or increased pressure for coordination is probably impossible. However, an attempt should be made to separate those factors that have contributed primarily to farm size and those that have contributed to pressure for total production-marketing coordination.

Contributions to Increased Farm Size

While the labor force per farm has remained essentially the same, productivity per worker has increased substantially. This has come about through the use of larger machines, higher-yielding crop varieties, and increased efficiencies in animal production. All these developments have permitted the farm operator with sufficient management capability to obtain access to adequate capital and information to continually increase the size and scope of his operation. As a result of the combination of factors, productivity per worker in agriculture has increased 200 percent since 1950. This has often occurred at the expense of the smaller farm operators who, without sufficient capital and management capacity, have found off-farm opportunities more desirable than remaining on their farms.

Production-Marketing Coordination

The willingness of some producers to become part of an integrated production-processing-marketing system has also contributed to increased farm size in producing some commodities. The dominance of large-scale units in certain commodities and the trend toward increased farm size is discussed in Chapter 1. While concentration of production on large units is not uniform by type of farm or by area, the trend toward large-scale units is evident almost universally. More than half the farms in California, Arizona, and Florida have sales of $100,000 or more. More than three-fourths of vegetables, potatoes, and sugar beets are produced on a few thousand farms. Poultry production and cattle feeding are other enterprises with recent trends toward large-scale units controlling or producing a high percentage of the total output.

A Dispersed or Concentrated Agriculture

A further idea of what is occurring in agriculture may be expressed by moving from a dispersed to a more concentrated agriculture. This is a movement from a situation with a large number of relatively small proprietary units to a situation where decision rests in relatively few hands. Dispersion and concentration in agriculture may take several forms. For example, a concentrated agriculture leaves little room for the proprietary owner-operated farm. Any kind of concentrated agriculture has different implications for producers, for firms supplying inputs, for firms marketing products, and for consumers than does a dispersed agriculture.

The authors in Chapter 2 list six reasons why the traditional dispersed organization of agriculture is threatened. These are:

- The increasing technical complexity of farming.
- Persistent pressure for volume production.
- The scarcity of land, coupled with growing needs for land for purposes other than farming.
- The effect of tax laws and rules making it relatively easy for nonfarm investors to outbid farmers for land.
- The minority position of farmers.
- The pressure put upon farmers to become a subsidiary unit in larger business organizations, themselves often built upon merchandising strategy.

As agriculture moves increasingly toward a more concentrated structure, the specific interests of various groups become more clearly defined. For example, there are now specific classes of hired farm laborers, tenant operators, marketers, and input suppliers to serve the specific needs of large agricultural production units.

The public, which both consumes farm products and finances farm programs, seems concerned with two major issues. These are (1) a desire for wholesome, nutritious, safe food at relatively low cost and (2) a concern for long-term goals such as conservation of land, and a respect for farmers' aspirations for both acceptable income and proprietary status. In many areas conflicts arise between those who want to maintain more dispersed production and those who favor greater concentration.

Inputs in Agricultural Production and Marketing

Accessibility to land is basic to the production of most agricultural commodities. Basic U.S. land development and settlement policies and programs have been and are instrumental in getting land into a large number of small holdings as opposed to large individually owned tracts. This, in essence, gave rise to a dispersed agriculture. While dispersion continues to be a basic national policy, recent developments in the formation of corporations and changes in income tax laws seem to thwart this policy.

However, this basic policy has probably tended to keep farm size down with the exception of some large outside investments, both private and corporate. Large areas of undeveloped agricultural land are no longer available and the past and present ownership patterns make it difficult to assemble large tracts of land for extensive agricultural operations. In the future, keen competition for land suitable for agricultural production will probably continue.

Access to research and new knowledge is important to the maintenance of a dispersed agriculture. Limiting the availability of research to only a few provides them with a decided competitive advantage.

The basis for a smoothly functioning dispersed agriculture is accurate and timely dissemination of price information for products and inputs. In a concentrated agriculture, market knowledge tends to become more limited and the advantage of accurate and complete market knowledge rests with larger, more strongly financed operations that can gather and develop their own product market grades and prices. Past policy has been for a publicly supported market news and information service to inform buyers and sellers of market conditions and prices. The more concentrated agriculture becomes, the more difficult it is to collect and supply this information.

Capital is an important and necessary input to agriculture. Access to capital by all size units is important to maintaining a dispersed agriculture. Making available credit or capital to only larger-sized units would be a distinct advantage to them. However, the presently wide range of available credit sources to all size units generally makes adequate capital available throughout agriculture.

In the dispersed-type agriculture, which we have had in the past, producers have been encouraged by various means, legislative and other, to organize for group action. These activities have resulted in the formation of banks, purchasing co-ops, marketing co-ops, bargaining associations, and service cooperatives. This policy will probably continue unabated as long as agriculture remains dispersed. However, a decided movement toward a much more concentrated agriculture would probably result in many of these organizations coming under increased regulation or supervision.

This movement toward a concentrated agriculture results in hired labor becoming an increasingly important factor. Such items as minimum wages, employee safety, labor-management relations, and work disruptions all become factors that must be considered. Increased labor costs tend to reduce some of the possible advantages of a concentrated agriculture because hired farm labor is of less importance as a factor in a dispersed agriculture.

Taxes and Capital Acquisition

Numerous other policies have an influence on the movement of agriculture toward a dispersed or more concentrated type of structural arrangement. Income tax policies, the handling of capital gains and investment credit, the attractiveness of agriculture to outside capital, the effect of tax programs for farm expansion, and land reclamation or improvement all have their effect. In addition, policies that tend to reduce risks from price fluctuations, income maintenance, crop insurance, government program payment limitations, small-farm benefits, pollution-control programs, and off-farm employment opportunities have some bearing on the movement toward a more dispersed or a more concentrated agriculture. These factors and their possible consequences and influences are discussed in Chapter 6.

Access to Markets

Agriculture is becoming influenced and pressured by a market-oriented system. For many commodities, it is necessary to have prearranged access to markets for products before they are produced. As long as agriculture was basically dispersed, having access to markets was of little consequence because there were always buyers for the output of the many small production units. This type of production system gave rise to a widely dispersed marketing system accessible to all producers. Large central markets also developed as in the case of livestock, fruits and vegetables, and grains which were easily serviced in terms of regulating practices, in collection and dissemination of information, and in assuring access to all producers.

As agriculture becomes more concentrated and as farm units become larger, and as agribusiness firms become more specific and assertive in their market requirements, accessibility to markets becomes increasingly important. Two options that farmers have relative to marketing in the future are discussed in Chapter 5. These are (1) to preserve access as individuals in an open market system or (2) to seek protected market access through group actions.

It is noted that if farmers are to protect their future as individuals, they must (1) prevent vertical integration, (2) keep corporations from farming, (3) maintain openly competitive markets, and (4) avoid disruptions by labor disputes. In addition, farmers must avail themselves of sufficient market intelligence in a form that serves their need and markets must be open, fair, and nondiscriminatory by size of producer and provide for sufficient policing to maintain competitiveness and provide a means of settling disputes.

The second alternative that farmers may pursue to maintain access to markets is by group actions in either of two ways. These are (1) vertical integration through cooperatives or (2) horizontal bargaining associations. In essence, the overall strategy here is for farmers to turn to group action as a replacement for the open market. Producers would, through various arrangements, relinquish their individual rights to arrange for sale to cooperatives or bargain through bargaining associations. In a concentrated agriculture where the cooperative or bargaining association became the producer's only access to market there would probably be some type of government regulation with respect to pricing practices and policies.

Producers may want to explore various other alternative methods of marketing and pricing that incorporate elements of both open and cooperative marketing and pricing systems. These might include such modifications as a market for long-term production contracts, a marketing board, or an auction-type centralized exchange.

Security or Independence?

The movement from a dispersed to a more concentrated agriculture would generally conform to farmers' desires for more security and less risk. On the other hand, such an agriculture would conflict with their wishes for a proprietory independence. Farmers who are adverse to group actions would not welcome the pressure they would eventually feel from bargining associations or unions. This pressure would tarnish farmers' cherished principle that given equal opportunity and a fair, honest market system, they can earn their reward. A concentrated agriculture would almost certainly reduce the quality of opportunity further.

Unless present policies are substantially altered, *very few logical reasons can be advanced to predict that the forces now in motion in agriculture will subside in the near future.* In fact, some scientists believe that new technology in farming will be adopted at an even faster rate in the next two decades. Most of these new developments, like many in the past, will require increased size, more capital, and more sophisticated management.

As all of these forces converge, it becomes more difficult for an individual to become established and compete successfully in commercial farming. Some family-owned partnerships and corporations and a number of sole proprietorships will be able to control the resources needed to organize an efficient farm business operation for some time to come. However, the problems of settling estates where large amounts of capital and high estate taxes are involved and the inability of some families to work together in solving the intergeneration transfer of farm units will gradually work to the advantage of larger-scale, less family-oriented, entrepreneurial control of agricultural output. The forces imposed from the processing, marketing, and distribution section will also further this trend, particularly for those farm commodities that are important components of an integrated food production-market-service system.

In the final analysis, the public at large also has an interest in who will control U.S. agriculture. The public interest may focus more on philosophic and social values rather than on economic ones because abundant production of food products is likely under either a dispersed or concentrated system.

Agricultural Economic
Report No. 107

ECONOMIES of SIZE in FARMING

Theory, Analytical
Procedures, and a
Review of Selected
Studies

ECONOMIC RESEARCH SERVICE
U. S. DEPARTMENT OF AGRICULTURE

FOREWORD

Efficiency and competitive stance of the family farm has been a lively topic for more than a decade. Advocates fear the family farm cannot continue to compete against large-scale farms with their high degree of mechanization and apparent use of advanced technology. It generally has been assumed that family farms have higher costs per unit of output--bushel, bale, ton--than large-scale farms. To test that hypothesis was the purpose of the study that resulted in "Economies of Size in Farming", AER-107 published 5 years ago.

In the report, Dr. Madden had pulled together and summarized the research results of many independent studies that directly or indirectly had dealt with the economies of size in farming. Madden's selected list of references included 138 items, and I am sure he used many additional manuscripts that had not yet been published. His central conclusion was that full-scale, fully mechanized one-man or two-man farms achieve most of the economies due to size of operation. Their costs per unit of output are equal to or lower than those of much larger farming operations.

While the data--the numbers--are now a bit out-of-date, the basic relationships and the conclusions reached in the original manuscript are still valid. The findings and conclusions have not been invalidated by more recent studies such as AER-216 "Midwestern Corn Farms: Economic Status and the Potential for Large and Family-Sized Units"--in fact, the two publications are complementary. Moreover, no other research report has come along to take the place of AER-107, which is still the standard reference on the subject. We continually refer the public to it. The report is in great demand.

It's for these reasons that AER-107 "Economies of Size in Farming" is being republished at this time.

Warren R. Bailey

Warren R. Bailey, Deputy Director
Farm Production Economics Division
Economic Research Service

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Washington, D. C. February 1967

HIGHLIGHTS

Selected studies of the economies of size in crop production, specialized beef feedlots, and dairy farms were reviewed. The theoretical basis for analyzing economies of size was discussed, and several alternative analytical procedures were examined.

The analytical procedure that provides the most reliable results in studying economies of size in farming is the synthetic-firm or economic-engineering approach. When the farm organization includes relatively few choices, this type of analysis may be done through manual budgeting. But when more complex farming operations are analyzed, linear programming is helpful. Choice of a residual claimant (the factors that absorb profit) strongly influences the height and shape of the average cost curve. For example, as more factors are included in the residual claimant, total cost is reduced, thus lowering average cost.

A modified concept of the farm firm--viewing the farm as a goods-and-services firm--provides a realistic basis for explaining the persistence of a relatively large number of small farms and part-time farms. This concept also helps to account for the rising importance of custom-hired farm operations.

A number of studies of crop-farming situations in various States were reviewed. In most of these situations, all of the economies of size could be achieved by modern and fully mechanized 1-man or 2-man farms.

Three studies showed 1-man farms were capable of achieving average costs as low as any larger size. In the production of cling peaches in California, average cost was found to be a minimum as orchard size reached 90 to 110 acres--basically a 1-man operation--when mechanized practices were used. The utmost efficiency was attained by a highly mechanized 440-acre irrigated cotton farm in Texas and a 1,600-acre wheat-summer fallow farm in Oregon.

Studies of Iowa crop farms and crop-livestock farms in the 1-man and 2-man size range were reviewed. When full ownership of all machinery was assumed, 2-man farms were found to be more efficient than 1-man farms. But when the hiring of timely and reliable custom service was considered for certain field operations, the average cost per unit of output for the smaller farms was reduced considerably. Under this assumption, the 1-man farms were nearly as efficient as 2-man farms.

In a study of vegetable farms in the Imperial Valley of California, farms of less than 640 acres were found to be nearly as efficient as larger sizes. Among field-crop farms in this area, economies of size were found to occur up to about 1,500 to 2,000 acres. Custom hiring was found to be very advantageous to smaller farms in this area.

Three other California studies reviewed gave similar results. Cash-crop farms in Yolo County achieved lowest average unit cost at a farm size of 600 to 800 acres, producing sugarbeets, tomatoes, milo, barley, alfalfa, and safflower. In Kern County, farms producing cotton, alfalfa, milo, and barley achieved their lowest average cost at about 640 acres. Cotton farms in the light-soils area of Fresno County were found to be most efficient at about 1,400 acres, while farms in the heavy-soils area of the county achieved their greatest efficiency at 700 acres.

Even though most of the studies show that all the economies of size may be attained by moderate sized farms, they also show that total profit may frequently be increased by extending beyond the most efficient size. However, uncertainty and management problems often become troublesome as farms become very large. This may discourage farm enlargement in many cases.

In specialized beef feeding businesses, the studies reviewed found that nearly all the economies of size are attainable in an intermediate size range of 1, 500- to 5, 000-head capacity. Beyond this size range, the average cost curve continues to decline slightly, but the savings per head are relatively unimportant--in the range of $1 to $2 per head fed. Slight reductions in the price of feeder cattle or feed have a much greater influence on the overall cost and profit of the feeding operation. Also, the rather small technical economies of size attainable beyond the intermediate size range are readily erased if the facilities are not utilized at full capacity throughout the year.

Management problems do not seem to become prohibitively difficult as feedlot size increases. A relatively small geographic area is involved, and the labor functions are quite routine and repetitive throughout the year. Thus, supervision of several hired men is not burdensome. Coordination also seems to be fairly easy for a wide range of feedlot sizes, because the biological and mechanical processes involve relatively little uncertainty. The empirical findings examined in this report suggest that beef feedlots will continue to exist in a wide variety of sizes, with a continued decline in the number and relative importance of small feedlot operations.

Studies of dairy farms in various parts of the country showed that 1-man and 2-man dairies can achieve highly efficient operation if they have control of sufficient capital and utilize the modern milking and housing technologies. Very little evidence is currently available regarding the efficiency of larger dairies--over 100 head. However, the results of one study suggest that management problems become troublesome at about 150 head. For instance, it is difficult to feed each cow according to her production as herd size and the number of hired men increase. Also, the operator of a large dairy does not have time to "shop around" and obtain the lowest possible feed prices.

ECONOMIES OF SIZE IN FARMING

Theory, Analytical Procedures, and a Review of Selected Studies

By

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INTRODUCTION

Since World War II, the number of farms in the United States has decreased substantially. Those remaining are getting larger, more specialized, and more highly capitalized. This is largely the result of a shift from small, self-sufficient farms to highly commercial farms. The direction and speed of these trends raise questions of public policy: Where are we headed? Are these trends necessary for efficient production? Are the resulting gains in efficiency offset by less tangible, but important, losses to society? Should the trends be encouraged or discouraged--or should we follow the doctrine of laissez faire?

This report is concerned with one aspect of these questions--the relationship between farm size and efficiency of production. Farmers, farm leaders, Government officials, businesses serving agriculture, and others continue to raise questions related to the economies of farm size. How large must a farm be to achieve the most efficient operation? Are larger farms always more efficient than small and intermediate-size farms? Are size-efficiency relationships of major or minor economic consequence? Many studies of the economies of size have been made, dealing with a wide variety of commodities and locations. The present report is an attempt to provide a conceptual framework within which to assimilate some of these independent studies into a unified body of information.

Considerable misunderstanding has centered around divergent definitions of the terms "size" and "scale." The term scale is used many places in the literature when proportions of resources are held constant, as in Euler's theorem (105).[1] However, there appears to be almost universal agreement among economists that in real life firms do not expand all resources and products in exactly equal proportions as the level of the firm's activity is increased. An increase in just the same proportions would probably be due to accident rather than to overt design of the entrepreneur. Thus, virtually every empirical study examining the relationship between average cost and level of production allows for changes in the proportions of factors and products, whether the analysis is done under the name "economies of scale" or "economies of size." The term "economies of size," as used in this report, means reductions in total cost per unit of production resulting from changes in the quantity of resources employed by the firm or in the firm's output.

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[1] Underscored numbers in parentheses refer to Selected References, p. 72.

The cost curves resulting from the many studies on the subject vary from one study to another. Most studies show that the ultimate in efficiency is attained by 1-man or 2-man farms; others show larger farms to be most efficient. Some of these differences are "real" variations in the size-efficiency relationships of the farms studied. Real variations may occur because of differences in (a) factors associated with the type of farming analyzed, (b) factors associated with the location of the farming area, such as climate, soil type, prices, wage rates, and yields, and (c) factors influenced by the date of the analysis, such as technologies considered, secular price changes, and Government price-support and supply-control programs.

Unfortunately, not all of the variation among study results is "real." Much of the variation is methodological--caused by differences in assumptions and procedures It is often difficult for the reader to discern how much of the difference between the shapes of the cost curves derived in separate studies is due to real differences in size-efficiency relationships and how much is methodological. A primary purpose of this report is to clarify the concepts underlying the procedures and assumptions used in economies-of-size studies. This in turn will aid in interpretation of published studies, and guide the design of future studies.

The reader who is primarily interested in learning the general size-efficiency relationships for various types of farming may prefer to skip the theory and method sections of this report, and proceed directly to the discussion of the individual studies on page 34. However, researchers and others interested in the precise interpretations and the procedures underlying the findings of these studies will find a careful examination of the theory and methods sections to be useful.

THEORETICAL BASIS FOR ECONOMIES OF SIZE--A REFORMULATION

An economist relies heavily on economic theory and theoretical models in his day-to-day dealings with real-world problems. The more realistic these theories are, the better equipped the economist is to work effectively with actual problems. The heart of economic research is economic theory. But the coronary artery that keeps this heart alive and useful is the feedback of improvements in the theory that are generalized from research experience in the real world. Thus, theories are made more realistic, and consequently more useful, as they are modified and broadened to take account of observations and phenomena not previously explained by the existing body of economic theory (74, p. 7).

Several modifications of the traditional economic theories are suggested here. Since theoretical treatments of production and cost curves abound in economic literature, only a brief statement of the conventional theory is given. 2/ Two sets of interconnected concepts are reformulated to facilitate proper interpretation of economies-of-size studies. These are the concepts of (a) longrun versus shortrun planning horizons as related to fixed versus variable resources and costs, and (b) resource divisibility. Other modifications of economic theory are suggested to better take account of some apparent inconsistencies between existing theory and the observed behavior of farms.

2/ An excellent treatment of the theory of production and cost is given by Walters (136). His article, particularly the bibliography, is highly recommended to the student of economies of size.

Length of Run and Fixity of Resources and Costs

Economies-of-size analysis is usually couched in terms of longrun and shortrun situations.[3] Shortrun economies are viewed as resulting from fuller utilization of a fixed plant, longrun economies as resulting from efficiencies obtained by changing plant size, presumably involving a longer time period. This concept is represented graphically in figure 1. The shortrun average cost curves (SAC) assume one or more resources to be fixed--available only in specified quantities--in the short run. The typical "u" shape of these shortrun average cost curves is explained as follows: Average costs per unit of output decline with an initial increase of output because fixed costs are spread over more units; eventually, however, average costs level off and then rise as other resources must be added in increasing proportions to the fixed resources to reach greater levels of output. A separate shortrun average cost curve applies for each level of the fixed resources--that is, for each size of plant.

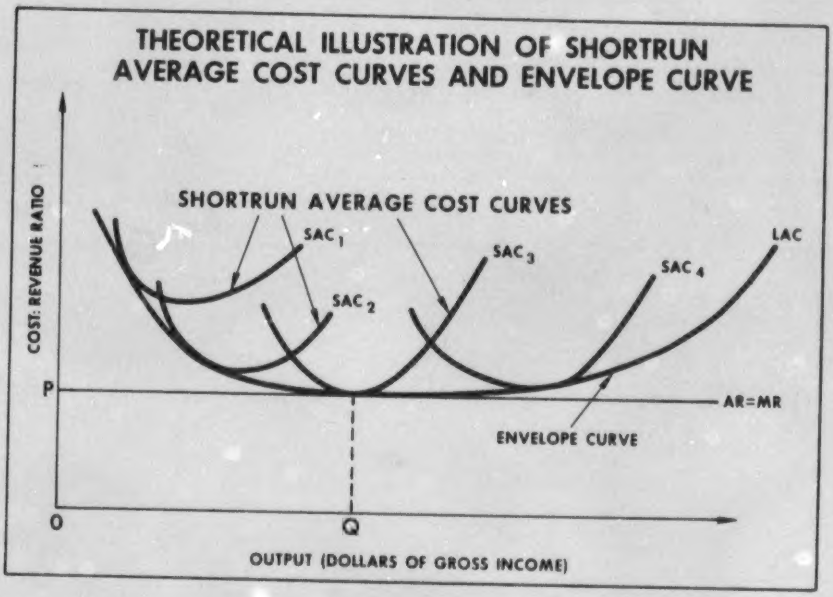
THEORETICAL ILLUSTRATION OF SHORTRUN AVERAGE COST CURVES AND ENVELOPE CURVE

Figure 1

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[3] One of the best statements of the theory underlying cost curves is given by Jacob Viner (135).

The selection of any resource as fixed in the short run is usually an arbitrary decision, based on observed practices of operators, the length of planning horizon being examined, and the longevity of the resources involved. This decision has no effect on the eventual shape of the longrun average cost curve. The longrun average cost curve (LAC) assumes all resources are variable, including those designated as fixed in the short run. A curve that is drawn tangent to shortrun curves approximates the longrun economies-of-size curve for that segment of the industry represented by the shortrun curves. This curve indicates the average total cost of production that would be experienced by firms of different sizes under assumed price relationships and technologies.

The fixed versus variable classification of costs and the longrun versus shortrun classification of planning periods have no effect on the basic size-efficiency relationships represented by the envelope curve. However, several other important economic principles related to equilibrium size of firm and survival of the firm owe much to this dichotomy.

Of first consideration is the principle that in the short run the firm will continue producing as long as revenue is great enough to cover variable costs, or conversely, as long as average variable cost is less than or equal to average revenue (price). Variable costs are the costs associated with the resources that are not fixed in the short run. Fixed costs are associated with the existing plant, or the resources that are considered fixed in the short run.

Another familiar principle is that in the long run, the firm can remain in production in its present form only if revenue is great enough to cover total cost (fixed plus variable)--in other words, if average total cost is less than or equal to average revenue.

A third important principle is that under conditions of atomistic competition, prices will gravitate toward a level such that all profits tend to be erased. Thus, the return to each resource will tend toward the level that provides exactly enough return to keep it from being drawn into alternative employment, but not enough to attract additional resources that would expand production. In equilibrium all firms would produce a level of output corresponding to the low point on their average total cost curve (level Q in figure 1). The theoretical average cost curve for a typical firm, as shown in figure 1, assumes that all firms produce under identical conditions. The line at p, lying tangent to the longrun average cost curve at point Q, is the average and marginal revenue schedule for a firm in perfect competition. Profit is zero at this point; firms producing larger or smaller quantities would suffer a net loss.

These concepts seem very clear and simple, until we try to apply them to an actual farming situation. When is the end of the longrun reached? Which resources are included in the fixed plant, and conversely, which resources are variable? These questions are complicated by the complex nature of farm resources. Durable resources have various life spans, ranging from 2 or 3 to 30 or 40 years or even longer. The number of years that an individual farmer keeps a tractor or implement depends on a series of considerations. Land is sometimes considered a fixed resource, but not always. The number of regular laborers is often viewed as one of the basic factors defining the size of a farm, but in some studies even this resource is considered variable.

A similar lack of precision surrounds the longrun-shortrun dichotomy. The long run implies a length of time sufficient to allow changes in the levels of all resources employed by the firm. The short run is viewed as a "short" period of time, such as one production season--a period so short that the firm does not have time to change the amounts of the fixed resources.

This time-oriented dichotomy is a somewhat inadequate concept for explaining the behavior of farm firms. Because of the various lengths of time that the different classes of resources are held fixed in an actual firm, no single short run can be exactly specified. Rather, the situation involves a large number of successively longer lengths of run, as additional resources are allowed to vary in quantity, until eventually all resources are variable and the truly longrun planning horizon is achieved.

Two facts further complicate this issue. First, the resources do not necessarily become variable in any predetermined order. For example, land may be held constant while machinery is varied, or vice versa. Second, both the length of run and the amount of time a certain subset of resources is held fixed are fictional time periods, not identified by any amount of calendar time. In real life, new firms are created or disappear every day. The levels of all the various resources are continuously being changed. At any point in time an entrepreneur could inject himself into the long run, simply by considering the effects of changing the levels of all the resources employed by his firm. As long as he considers one or more of his resources to be fixed in quantity, he is operating or planning in one of the many shortrun situations. Thus, length of run and fixity of resources are relative terms, rather than distinct entities. Furthermore, they depend entirely on the entrepreneur's frame of mind.

The moment a resource is committed to production it becomes fixed as far as the day-to-day management decisions are concerned. It becomes essentially a free resource that will be substituted as far as possible for resources that have not yet been committed to production. For example, the firm will tend to delegate as much work as possible to regular hired men or unpaid family workers, rather than hire additional laborers. As long as the farmer considers these regular laborers as a permanent part of his business, their wages become in effect part of the overhead.

In resource substitution language, the price of committed resources is zero. Thus, the shortrun economic optimum calls for increasing the employment of these resources as long as this will increase output; that is, to the point of zero marginal value product of the committed resources, and zero marginal rate of substitution for noncommitted resources that still have an effective nonzero price. But as soon as the entrepreneur considers varying the quantity of one of these resources, its price becomes relevant again. If an increase in this resource is considered, then the current purchase price becomes relevant. If either a decrease in the level of this resource or a shift in its use is anticipated, then the current salvage value or opportunity cost becomes relevant.

Now let us relate these concepts to the interpretation of economies-of-size studies. When average variable costs are presented, the reader should inquire as to which resources are considered as variable and which ones as fixed. Let us denote the variable resources as subset V, and the fixed resources as subset F. With these categories in mind, the reader can then proceed to interpret the empirical results of a cost analysis. The firm will tend to continue operating as long as it receives enough revenue to at least cover the cost of all the variable resources. As the planning horizon is lengthened, the entrepreneur considers variation of additional resources. These resources are conceptually shifted from the fixed to the variable subset, and revenue must be correspondingly larger if the firm is to remain in production for this length of planning horizon. In the longest possible run, all the firm's resources are in the variable subset (V), and the fixed subset (F) becomes empty.[4] Therefore, in the long run, revenue must be equal to or greater than total cost--including the direct cash cost of operating expense items, and the opportunity cost or reservation price of all other resources, including entrepreneurial capacity. In other words, average total cost must be less than or equal to average revenue if the firm is to remain in production indefinitely in its present form.

Resource Divisibility and Economies of Size

In addition to, and independently of, being considered as either fixed or variable, resources may be classified as either divisible or discrete. As the name implies, discrete resources are available to the firm only in counted quantities (whole numbers) of specific size units. The discrete unit may be a single item, such as a boiler, or an increment of a certain size, such as a quarter section of land. Divisible resources are available in measured quantities, in contrast to counted quantities. These include such things as electricity, fuel, and custom-hired services.

The distinction between discrete and divisible resources is not always clear, nor is it the same in all areas. For example, local customs and practices in one area may dictate that land be sold in 40-acre or 160-acre increments as a discrete resource; in another area it may be sold in irregular-sized plots as a divisible resource.

Chamberlin points out that nondivisible resources may sometimes become available to a firm in divisible quantities (22). This can occur when the firm obtains the undivided use of the discrete resource unit for a fraction of the production period. For example, a hay baler may be owned and operated jointly by two or more farmers. Likewise, an accountant may be hired on a part-time basis. Custom hiring and leasing are also possible in some cases, as a means of making an otherwise discrete resource available on a divisible basis.

Divisible resources are usually fully utilized. Some may be obtained in the exact amount needed, as in the case of electricity, water, and custom-hired services. In the case of other divisible resources--gasoline or fertilizer, for instance--leftover quantities may be stored for future use, or returned to the dealer for credit. On the other hand, discrete resources are often underutilized, even by well-organized firms. For example, a tractor of a certain size may be underutilized with 640 acres but may not be able to handle 800 acres, while local practices may dictate that land is available only in increments of 160 acres. Many such instances exist in which the discrete resources do not "come out even," because they have different capacities.

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[4] Lengthening the planning horizon does not necessarily imply an extension of time, as indicated earlier. The long run could occur in a single day.

In general, the smaller the incremental unit of a discrete resource relative to the total quantity used by the firm, the closer the firm can come to achieving full utilization of that resource and any other discrete resources with which it is jointly used. In the above example, suppose now that land is available in 40-acre increments instead of 160, and that the tractor would be fully utilized with 695 acres. The firm could move from 640 to 680 acres, and thus achieve a fuller utilization of the tractor.

If all resources or resource services were available in divisible quantities, then any underutilized resource could be replaced by a slightly smaller and (presumably) slightly cheaper resource, and full utilization of all resources could be achieved.5/

This whole matter of full utilization of a resource should now be placed in the broader context of the firm's actual behavior. Full utilization is a partial means of reducing average cost of production, as the cost of the resource is spread over more units of output. However, full utilization of one discrete resource may not be compatible with full utilization of certain others. Furthermore, reducing average cost of production is only a partial means of increasing profit, and, after all, profit is the motive force of the firm. Thus, a firm would not necessarily move from 640 to 680 acres to achieve full utilization of a resource. Considerations other than full utilization might be more important. For example, total profit might be higher with 640 acres than with 680. Or, perhaps some other resource such as the operator's labor or capital might be limited. Also, the operator might decide to allow a little excess machine capacity as a safeguard against losses due to untimeliness of operations resulting from unfavorable weather.

Problems of Uncertainty and Coordination

Most studies of the economies of farm size have shown that as farm size increases, average cost either (a) decreases, or (b) remains about the same, or (c) on very large farms, increases slightly but still is below average revenue, even for the largest farms observed. This implies that profit increases steadily as farm size increases, and that the largest farms are the most profitable. It would be expected, then, that farms would tend steadily toward the largest sizes, and that the size distribution of farms would be shifting accordingly. This does not seem to be so, however. In many areas and for many types of farming, the most rapid increase in number of farms is in the intermediate size classes, consisting chiefly of farms that can be operated by one or at most only a few full-time men, using modern technology and adequate capital. The number of very large farms seems to be increasing only gradually and, in some cases, to be decreasing.

5/ This seemingly utopian situation--perfectly divisible resources--is approximated when all resource services may be hired on a custom or contract basis, as in the Imperial Valley of California (20).

This is consistent with broad changes in U.S. agriculture generally. After detailed analysis of a special tabulation of census data, Nikolitch has identified three postwar trends:

> First, the very small units account for most of the net decrease in number of farms. Second, farm production, land and other resources are concentrated not in a smaller number of large farming organizations, but in a rapidly expanding number of adequate farms. Finally, the number of farms and farm production are increasing more rapidly among adequate family farms than among the larger-than-family farms (94). 6/

How can these trends be reconciled with the empirical findings indicating huge profit possibilities for very large firms? The approach used here is to refine the concepts underlying the traditional theory to allow for the treatment of uncertainty and difficulty of coordination as factors limiting indefinite expansion of farm size.

Definitions of Supervision, Coordination, and Entrepreneurship

Management is traditionally defined to include two components: Supervision and coordination (70). Entrepreneurship (uncertainty-bearing or risk-taking) is often considered as different from management because it is the unique function of the entrepreneur.

Entrepreneurship is an essential element in any firm. It is a specialized and personal attribute that cannot be bought on the market. Because men are unequal in entrepreneurial ability, the production function will vary from one person to another (136, p. 4). Entrepreneurship involves making major decisions such as hiring supervisors and plant managers, and making broad judgments regarding total resource use, choice of enterprises, technology employed, and disposition of products (104). Furthermore, it involves bearing the responsibility for the outcome of these decisions in terms of the financial success or failure of the firm. The farm operator usually serves three functions--labor, management (including coordination), and entrepreneurship. Additional supervision and coordination may be provided by hired managers, foremen, or boards of directors (22), but only the operator, the owner of the enterprise, can perform the entrepreneurial function.

Supervision is overseeing day-to-day operations of the firm, seeing that each task is performed correctly. Coordination involves determining the kinds of contracts to be entered into, seeing to it that the necessary resources are available for timely completion of individual tasks, and carrying out adjustments in response to

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6/ "Adequate family farm" is defined as a farm business with sufficient "resources and productivity to yield enough farm income to meet expenses for (a) family living; (b) farm expenses, including depreciation, maintenance of the livestock herd, equipment, land and buildings, and interest on borrowed capital; (c) enough capital growth for new farm investments required to keep in step with technological advance and rising levels of living."

uncertainty and changing conditions. The essential feature of coordination is that every decision must be made in the context of all the other decisions already made or likely to be made. This gives rise to the unitary character of coordination--all interrelated information must pass through a single brain. Boards of directors may be the coordinators, but each member is obliged to keep all the data concerning interdependent aspects of the firm's operation in his mind. Machines and computers can make coordination more efficient in some cases, but the loss of reality due to the coding and decoding of information sometimes leads to errors in judgment. Devices such as 2-way radios and closed-circuit television also increase the individual's effectiveness and capacity for coordination. But with a given state of technology, the quantity of resources other than coordination that can be advantageously added will be limited by management's degree of ability to coordinate the firm's activities (22).

Coordination and Supervision Problems Unique to Farm Firms

The firm's activities can be thought of as integrating and aggregating many different stages of production. 7/ Conceptually, a stage consists of all the productive services, both durable and nondurable, that cooperate in a single major operation or group of closely related minor operations. The delineation of a stage will vary from one situation to another, depending on the importance of the operations involved and the way they fit into the time sequence of the production process.

One crucial difference between factory production and farm production is the relationship between stages. In a typical factory operation, the object being produced flows through a series of stages, all of which can proceed simultaneously at spatially separate points. In farm production, the stages typically are separated by waiting periods, but occur in the same areas. For example, many stages occur on an acre of corn--plowing, planting, cultivating, harvesting--but the stages are separated by waiting periods because the biological processes involved take time to complete. 8/

This difference has important effects on the labor and management requirements of the two types of firms. Coordination of factory production poses unique problems not faced by most farms, because a large number of different stages are continuously being performed by many different persons at different places in the plant. Interpersonal communication and supervision problems tend to be more serious as the number of employees increases. In farming, the stages are spread out over a long period of time, so that relatively few operations must be coordinated, and only a few people employed, at any given time.

7/ An excellent formulation of this concept is given by French, Sammet, and Bressler (46).

8/ The author is indebted to John M. Brewster for pointing out this important distinction. For a more thorough discussion of this concept, see Brewster's paper, The Machine Process in Agriculture and Industry (15).

On the other hand, the farm manager's task is complicated by (1) the relatively large dispersion of workers in most types of farming, and (2) the necessity for regular farm laborers to shift repeatedly from one kind of work to another throughout the production season. These features lead to a considerably greater supervisory input per man in farming than in factory operations, where most workers perform essentially the same tasks throughout the production cycle.

Uncertainty and Coordination Problems as Factors Limiting Farm Size

Farm enlargement is frequently limited by uncertainty and the difficulty of coordinating larger farms. As the farming operation becomes larger and more complex, the number of unpredictable situations requiring unique decisions becomes burdensome, because the coordinator must relate each decision to all the other decisions that have been made or are going to be made. At this point, the amount of other resources that can be profitably added is limited by the ability of management to coordinate a larger operation. In cases where coordination is a limiting resource, the marginal value product of additional resources becomes less than their marginal cost. Consequently, the presence of a profit margin does not necessarily imply that additional resources will be drawn into production. Similarly, in cases where the high degree of uncertainty leads farm operators to place a high reservation price on their coordination and entrepreneurial abilities, the profit potential is not sufficient to attract new firms into production, or to induce existing firms to greatly expand their operations.

According to Knight, coordination is essentially a dynamic function--reacting to changes in the pecuniary and technical situation that occur under conditions of uncertainty (74). Thus, the need for coordination is a feature of uncertainty and disequilibrium, rather than of perfectly competitive static equilibrium. In Marshall's stationary state, no coordination would be needed. Management would be reduced to supervision. However, Kaldor points out that in the actual world the size of an individual firm may remain more or less limited because the inherent profit-maximizing tendency of the firm to expand will be continuously defeated by spontaneous changes in the pecuniary and technical situation (70).

Hicks is in general agreement with Kaldor on this point. He contends that we can perceive forces that might lead to a determinate size of firm even if changes in the quantity of the coordination factor were allowed. Under conditions of uncertainty, one of the obstacles to attainment of very large firm size is the increasing difficulty of management and control as the firm gets larger (62, p. 200).

This phenomenon could be viewed as a decreasing marginal productivity of the coordination factor, requiring the very large firm to make a greater than proportional increase in coordination as the levels of the other resources are increased to achieve higher levels of output. This would tend to force the average total cost curve to turn upward at some very large size of firm.

Hicks cites risk as another item in the list of phenomena that might inhibit the indefinite expansion of a firm. The effect of increased risk may be represented as a downward shift in the discounted average revenue curve for very large levels of output. The marginal revenue function would fall even more rapidly, and would eventually intersect the marginal cost curve. Beyond this point, discounted profits would decline with greater output. This point of intersection could occur even within the range of constant average cost, where the marginal and average cost curves coincide. Thus, Hicks concludes that in cases where risk increases with level of output, size of firm may be limited (62).

In this discussion, Hicks considered only the revenue-decreasing aspects of risk, ignoring the fact that sometimes risk also increases cost. For example, a sudden outbreak of a contagious disease may force a beef feedlot operator to incur an additional operating cost for medicine and veterinary service. Timely detection and treatment might be more difficult for large operations. Other examples are the use of frost-inhibiting devices and the hiring of custom harvesting to "beat the weather." In some instances, the cost-increasing effect of risk may be more serious as size of farm increases. In such cases, the downward-sloping discounted average revenue curve would be intersected (at an even smaller size of firm than Hicks indicated) by an upward-sloping "adjusted" marginal cost curve. In other instances, as Whitin and Peston have pointed out, the larger volume of resources available to bigger firms provides an advantage in meeting contingencies (138). For example, consider the volume of spare parts that a repair firm must hold in inventory to achieve a given probability of never running out of any specific item. As the size of the firm increases, the required volume of spare parts increases by a smaller proportion than the increase in the amount of repair work done. Another case in which larger firms might have an advantage in meeting risk is in providing backup machines to be used in case of breakdown or mechanical failure of one of the regular machines. It is reasonable to believe that the proportion of backup machines needed to provide a given probability of always being able to avoid breakdown delays would decrease as the size of firm and total number of machines increased. Cooper points out that this would be particularly important in operations such as harvesting truck crops, where untimeliness would cause considerable loss (27).

Despite these possible exceptions, most elements of uncertainty make coordination increasingly difficult as size of farm increases and lead eventually to a maximum feasible size of farm, for the reasons summarized below.

Management becomes more difficult as the complexity and uncertainty of the operations increase. Complexity is a function of the number of interdependent data the operator must simultaneously perceive, understand, and relate to the overall operation. Three aspects of farming greatly increase the difficulty of management: Lack of uniformity among resources, spatial dispersion of the operations, and unpredictable behavior of resources, environment, and the market.

(1) Uniformity of resources has an important bearing on both the coordination and supervision aspects of management. For example, a large farm with several different soil types is more difficult to manage than a similar size and kind of farm with highly uniform soil. Where the soils are extremely variable, some parts of the farm require more frequent irrigation or more thorough tillage than other parts. The operator often finds it easier to do the work himself than to be continuously advising a hired man who is less familiar with the soil characteristics, and, therefore, the way the different parts of a field must be irrigated or tilled. A uniform dairy herd is easier to manage and is more amenable to operation by hired men than a herd of diverse composition, where each cow must be handled in a special way known only to an experienced dairyman. A beef feedlot is easier to manage if the cattle are uniform in age, sex, appearance, and rate of gain because it requires fewer feeding

pens, fewer special rations, and less time and effort in separating the cattle for marketing. Difficulties associated with lack of uniformity of resources usually require special attention from the manager who must coordinate the operation. Some operators prefer to keep the size of their farms down to the acreage they can handle with little or no hired help. These farmers can expand their operations only by acquiring larger and higher capacity machines that allow them to cover more acreage, or by reducing the variability of their resources--for example, leveling and draining land or purchasing more uniform land requiring less coordination.

(2) Spatial dispersion, or distance, is another factor affecting management. When operations are going on simultaneously in widely separated parts of the farm, supervision is hampered by the need for frequent and prolonged travel back and forth to keep abreast of changing conditions. Coordination is also hampered by a lack of knowledge of what is happening in different places. Thus, communication problems and errors in reporting become important as size of operation increases, although they are less serious in intensive types of farming that occupy a relatively small area, such as poultry and beef feedlots.

(3) Lack of predictability also causes management difficulty. For example, in areas where market conditions are erratic or the weather is highly unpredictable, management problems are compounded. Unreliable laborers also add to management problems, increasing the amount of time management must devote to checking out and following up the tasks assigned to them. The same holds true for the other resource services the farmer hires. If experienced and competent family or hired foremen are available, or if a highly reputable and experienced service firm is hired to perform certain farm operations (spraying, fertilizing, harvesting, for example), then the farmer's coordination task becomes less complicated as part of the supervision is delegated to the family member or hired agent. Emergence of specialized service firms eases the farm-management burden, and opens up possibilities of farm expansion that would otherwise be impossible because of management problems during peak workloads.

Conditions That Foster Farm Enlargement

Despite the handicaps of and impediments to farm enlargement discussed above, in some areas and types of farming there has been a marked tendency toward larger farms. Considerable research must be done before we will understand all the preconditions and situations that tend to either favor or inhibit a widespread enlargement of farms. The following tentative generalizations may suggest additional areas of inquiry into the causal relationships underlying some of the important structural changes related to farm size.

To the extent that coordination is a limiting factor in the expansion of farm size, farms will tend to expand as management technologies become available and allow the operator to coordinate larger units. Improved roads, fast pickups, helicopters, and airplanes facilitate faster movement of management personnel. By reducing the need for movement of management personnel, telephones, two-way radios, and closed-circuit television allow management to keep up with developments in the firm, to make decisions, and to see that they are carried out properly. Physical arrangements can also reduce coordination problems. For example, a specialized beef feedlot occupies relatively little area. For this reason, it is easier for the manager to coordinate the activities of several men and handle thousands of cattle in a feedlot than on a beef cattle ranch that is spread out over several thousand acres. Availability of a large supply of experienced and reliable farm labor, and of timely and reliable custom services to replace work otherwise done by farm labor, can reduce the need for supervision and simplify coordination.

More rapid farm enlargement should be expected in areas and types of farming where resources and production conditions are homogeneous, and put less of a strain on coordination. For example, in areas where soils are homogeneous and production conditions are relatively predictable, coordination of larger farms is less complex than in areas where extreme variations in soil and weather necessitate frequent managerial reaction to unanticipated conditions. Likewise, when irrigation becomes available in a semiarid region, yield uncertainty is reduced because farmers no longer need to rely on unpredictable rainfall.

It is widely recognized that Government price-support programs have facilitated enlargement of farms producing price-supported commodities and closely related products. When price uncertainty is eliminated, farmers feel more confident of their debt-repayment ability. They are more likely to apply for, and creditors are more likely to give, the credit necessary to acquire the machines, land, and other resources necessary for farm expansion. Similarly; yield uncertainty is reduced as irrigation becomes available, as new disease-resistant varieties are developed, or as rapid mechanical harvesters are developed to replace an unsure seasonal labor force. As these devices or technologies become available and widespread, farmers tend to "charge" a lower reservation price for the entrepreneurial service of bearing the uncertainty inherent in operating a larger farm. This lower reservation price will inevitably lead a greater number of entrepreneurs into larger farm sizes, and shift the supply curve to the right. Hence, the balance between profit potential on one hand and the opportunity cost and reservation price of additional resources on the other hand is tipped in favor of farm enlargement.

The Residual Claimant and Profit

Total cost and profit are complementary terms, in that they always add up to gross income or revenue. However, neither term has any precise meaning without a complete specification of the residual claimant--the set of resources that absorbs the profit. Total cost is the sum of the direct cash costs plus the opportunity cost or reservation price (whichever is higher) of any resources excluded from the residual claimant.9/ Thus, as more resources are excluded from the residual claimant, total cost increases and the residual profit becomes correspondingly smaller. However, in the long run, profit must be at least large enough to compensate the factors

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9/ Conceptually, opportunity cost is the highest return a resource can earn in any alternative employment currently available. In accounting, opportunity cost is usually approximated by the market rate of return, such as going wage rates for operator and family labor, foreman salary for management, and the market rate of interest on capital investment. Some resources do not have any effective opportunity cost, in the sense that the going rate of return is less than adequate to retain the resource in use. In these cases, the reservation price becomes relevant, as the lower limit of resource returns below which the resource will simply retire from use. The reservation price usually becomes the cost that applies to entrepreneurship.

in the residual claimant, or these resources will seek alternative employment or retire from use. Under conditions of uncertainty, profit must be sufficient to compensate the entrepreneur for bearing the uncertainty of the firm's financial outcome. Thus, entrepreneurship (uncertainty bearing or risk-taking) is an essential element of the residual claimant.

Alternative Profit Concepts

Many alternative profit concepts are employed in empirical studies. Each of these concepts depends on a different (and usually implicit) definition of the residual claimant. Below, several of the most widely used profit concepts are described in common accounting and farm management terms.

Net cash income is gross income minus cash costs. This quantity indicates the cash remaining from the business after payment of all cash expenses for the year. Unless this figure is positive, the operator will be forced to draw on savings or outside sources for funds to continue in business, even during a single season.

Net farm income is net cash income minus depreciation. This is approximately equal to taxable farm income as defined by the Internal Revenue Service. As long as this quantity is positive, the operator can remain solvent indefinitely. He can replace his equipment, pay all cash costs, and have cash left over. However, the remaining amount of cash may be so low that returns to the operator's labor, management, entrepreneurship, and capital are below market rates. If this happens year after year, the operator will often find some way to earn a higher return for his resources, such as reorganizing the farm or even liquidating and reinvesting.

Operator labor and management income[10] or simply operator income, is net farm income minus interest on investment. This quantity represents what is left for the operator's personal services--labor, management, and entrepreneurship--after paying for all the other resources at market rates. If the operator has full equity in his land and equipment, then the interest on investment is not a cash cost, but rather an opportunity cost reflecting what the capital would earn if invested elsewhere at prevailing rates of return. If the operator owned less than 100 percent of his resources and therefore paid cash interest costs, both his net cash income and his net farm income would be lowered by the amount of the interest charged. Operator income would remain unchanged.

Further distillation of "profit" may be achieved by pricing parts of the operator's personal resource contribution, thus further reducing the elements included in the residual claimant. For example, operator management income (or, more precisely, operator management and entrepreneurship income) is operator income minus an opportunity cost charged for the operator's labor. This amount is a return to the operator for his services of coordinating and supervising, and for bearing the uncertainty of the business.

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[10] This term, as used in the literature, implicitly includes entrepreneurship, and could be stated more exactly as operator labor, management, and entrepreneurship income.

Finally, entrepreneurial income is defined as operator management income minus the opportunity cost for the operator's management (supervision and coordination). 11/ This value is a return to the operator for his entrepreneurial function, uncertainty-bearing. Thus, it is a "pure profit," as defined by Professor Knight (74). In businesses involving some degree of uncertainty, this quantity must be positive for the firm to continue operating indefinitely. All resources are paid for at their opportunity cost, including the operator's labor and his management services of supervision and coordination, which could conceivably be supplied by hired persons. The only remaining element of the operator's service is his entrepreneurial function of bearing the uncertainty of the business venture.

Proper interpretation of a profit or cost statistic depends on how the residual claimant is defined. Conversely, what is included in the residual claimant depends on the purpose of the analysis and how the analyst intends to interpret his cost and profit data. If the reader is to fully understand and reconstruct the accounting data, he must know what resources are included in the residual claimant, and how each of the other resources was priced. For example, table 1 shows five kinds of net income in a way that allows the reader to choose his preference, and this list of possible "profit" concepts is by no means complete.

Cost:revenue ratios are also shown in table 1, assuming four alternative residual claimants, so as to demonstrate two important principles. First, as additional resources are included in the residual claimant, the cost:revenue ratios become smaller. Second, one-man farms appear to have lower average costs in relation to larger farms when the residual claimant includes all the operator's personal services (labor, management, and risk-bearing) than when labor is excluded. These principles provide a clearer understanding of the cost:revenue ratios or average costs in the various studies discussed later in this report.

This demonstration of the extreme diversity of assumptions serves to illustrate an important source of misunderstanding and erroneous interpretation of cost analysis studies. An example of a study showing a net loss for all firms analyzed will clarify the meanings and interpretations of the various profit concepts. This was a study of Arizona cattle ranches (83). The principal source of data was a 1961 survey of 34 ranches throughout the southwestern portion of the State. Grazing land in this area typically has a very low carrying capacity, and each ranch has vast expanses of rangeland, with only a handful of cattle gleaning their existence from each square mile. A typical ranch was budgeted for each size class based on the sample data. All the resources were valued at current market rates or opportunity costs, including $5,000 per man-year for family labor, 5 percent interest on investment capital, and 6 percent interest on operating capital.

Average cost per hundredweight of beef produced declined sharply as ranch size was increased. For example, a 5,300-acre ranch carrying a herd of 100 animal units had an average total cost per hundredweight of $54.64, compared with $28.39

11/ The salary of a hired farm manager or foreman is sometimes used as an approximation of this opportunity cost.

Table 1.--Alternative net income formulations and cost:revenue ratios calculated for optimal organization of farms at selected points on an envelope curve

Item	Unit	Optimal farm organization		
Resources:				
a. Regular labor (including operator)	Man-year	1	3	5
b. Tractor and equipment, 6-row	Number	1	3	4
c. Farmland (90.9 percent cropland)	Acre	440	1,120	1,720
d. Irrigation wells	Number	4	10	15
e. Seasonal hired labor	Man-year	.4	.9	1.4
f. Investment (average value)	Dollar	294,347	748,087	1,147,086
Enterprise levels:				
j. Cotton	Acre	140	356	547
k. Grain sorghum	do.	121	306	470
l. Soybeans	do.	109	279	428
Costs:				
m. Operator management cost 1/	Dollar	2,974	7,634	11,732
n. Operator labor cost	do.	2,569	1,541	0
p. Interest on investment	do.	14,717	34,404	57,354
q. Interest on operating capital	do.	336	876	1,347
r. Depreciation	do.	4,449	11,370	17,307
Cash costs:				
Seasonal hired labor	do.	714	1,817	2,791
Hired regular labor	do.	0	5,138	10,276
Other cash costs	do.	19,300	50,091	78,003
s. Total cash costs	do.	20,014	57,046	91,070
t. Total cost	do.	42,085	108,237	167,078
Income:				
u. Gross income	do.	59,481	152,684	234,647
v. Net cash income = u - s	do.	39,467	95,638	143,577
w. Net farm income = v - r	do.	35,018	84,268	126,270
x. Operator labor and management income = w - p - q	do.	19,965	45,988	67,569
y. Operator management income = x - n	do.	17,396	44,447	67,569
z. Entrepreneurial income = y - m	do.	14,422	36,813	55,837
Cost:revenue ratio when residual claimant is--				
Operator risk-bearing = 1 - z/u	---	.758	.759	.762
Operator management and risk-bearing = 1 - y/u	---	.708	.709	.712
Operator's personal services (labor, management, and risk-bearing) = 1 - x/u	---	.664	.699	.712
Operator's personal services and capital = 1 - w/u	---	.411	.448	.462

1/ Assuming the opportunity cost or reservation price of operator management is 5 percent of gross income.

Source: (80).

for a ranch budgeted with about 43,000 acres of rangeland, carrying 800 animal units. Beyond this size only slight economies were attained. As ranch size increased to 90,000 acres of range with 1,680 animal units, average cost per hundredweight of beef produced declined only 55 cents, to $27.84.

These costs are well above the longrun projected beef prices for the area, and imply that the net return is not sufficient to meet the cash operating costs and depreciation, plus the opportunity cost of capital (interest on the investment) and the opportunity cost of the operator's labor and management. However, these opportunity cost items account for more than half of total cost. All of the composite ranches budgeted in the study were found to be capable of earning a positive net farm income, meeting all cash operating costs and depreciation, but not capable of meeting the opportunity cost on capital and the operator's personal services. A rancher having full equity in his operation could continue operating indefinitely, even though his resources failed to receive their opportunity cost. However, in a longrun planning situation such as that facing a prospective or new rancher or the heirs of a deceased rancher, it seems unlikely that the resources would be invested in an Arizona cattle ranch unless all opportunity costs were met.[12]

This line of reasoning is generally valid for cases involving stable or constant land prices. However, when land prices are generally rising, farmers and prospective investors may be encouraged to invest in farming even though current net income is not sufficient to meet the opportunity cost of all resources. Over a long period capital gains can be an important source of increase in net worth, particularly in view of the fact that realized capital gains are taxed at lower rates than income from the farming operation. Throughout all of the studies examined in the present report, land values are assumed to remain constant, thereby ignoring the possibility of capital gains. The transition from this assumed situation to real life can be easily made by applying the appropriate rates of capital appreciation.

Frequent Misinterpretations of Farm Cost and Profit Data

Most studies of economies of size show average total cost to be less than average revenue on the farms studied, leaving a profit which is sometimes rather large, particularly among very big farms. This leads to the idea that these very big farms are enjoying an exorbitant profit. The traditional formulation of the theory of the firm sometimes leads to concern over the existence of profit, for two reasons. First is the belief that if our competitive system is really functioning, entry of new firms or expanded production by existing firms will surely force output up and prices down. Second is the belief that as the price is forced down toward the equilibrium level (tangent to the low point of the average total cost curve), all smaller firms will be forced to either expand or drop out of production. This prospect is particularly distressing to those concerned about the future of the "small family farm."

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[12] This would require either a more favorable set of resource costs and beef prices, or more efficient technologies than those currently used on the typical Southwest Arizona cattle ranch.

Another reason for concern is that when the results of several independent economies of size studies analyzing a given type of farming in different areas are compared, it appears that some areas are considerably more efficient than others. This may lead to the conclusion that the areas exhibiting relatively higher cost curves will give way to the more efficient producing areas. These concerns are frequently the result of erroneous interpretations of farm cost and profit data, as discussed below.

The contention that the existence of a profit margin will always attract new resources is a misinterpretation of the key concepts of profit, total cost, and residual claimant. Total cost, as calculated in economies of size studies, includes a return to all resources excluded from the residual claimant. Since profit is the return to the residual claimant, and the residual claimant usually includes operator management and entrepreneurship, profit includes a return to the operator for supervising and coordinating the operation and for bearing the risk and uncertainty of the firm's financial outcome. Under perfect competition, equilibrium of the firm requires that the average revenue (marginal revenue) curve is tangent to the minimum point of the envelope curve (average total cost curve). Each resource is paid just enough to keep it from being drawn into other uses, but not enough to attract additional resources into production.

One vital assumption of perfect competition is that perfect knowledge prevails--no uncertainty exists. This implies that the marginal value product of the uncertainty-bearing factor is zero. Hence, the firm does not need to earn a pure profit, or net return to uncertainty-bearing or entrepreneurship. There is no pure profit at equilibrium under perfect competition, because there is no uncertainty. Firms will maximize profit (at zero level) or minimize losses by gravitating toward the minimum point on the envelope curve, at output level Q in figure 1.

Now, if we relax one of the assumptions of the perfect competition model, and recognize that uncertainty prevails, then we view firms as tending toward an elusive equilibrium that does involve a profit; that is, a return to uncertainty-bearing or entrepreneurship. Thus, average revenue will not necessarily be forced down to the minimum point on the longrun average cost curve. Firms in equilibrium would maximize profits (at some positive level) by extending output beyond level Q. But the presence of uncertainty leads real firms to hold production below the profit-maximizing level.

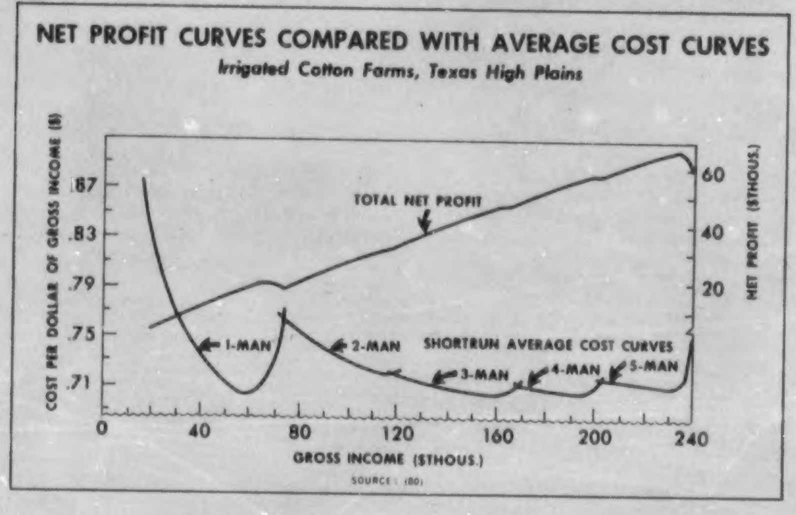
Farms smaller than the size corresponding to the low point on the average cost curve will not necessarily be forced out of production, as long as their profit potential is sufficient to overcome the opportunity cost and reservation price of small-farm operators. Opportunity cost is likely to remain relatively low for a substantial number of farmers who lack the skills, education, and mobility to be attracted into off-farm employment. Farmers will probably continue to place lower reservation prices on their management for 1- or 2-man operations, and higher reservation prices for larger operations that require supervision of several hired men and coordination of a highly complex operation. Furthermore, farmers will probably also continue to place a relatively lower reservation price on their entrepreneurial function in an operation that can be operated profitably by one or a few full-time men, as compared with very large, complex farm businesses that have a high probability of failure.

Another misinterpretation of farm cost analysis concerns interregional competition. Certain types of farming will not necessarily disappear from areas that seem to have relatively high production costs, nor will production necessarily gravitate into other areas that seem to be capable of greater efficiency. For any commodity or type of farming, there are considerable differences in production costs between areas. This variation is partly real, reflecting true differences in efficiency, and partly methodological, resulting from differences in accounting procedures, definition of residual claimant, and other assumptions employed in the cost analysis. Even when the methodological effects are sifted out, leaving only the real differences in production cost, one is still not justified in predicting unequivocally that the less efficient areas will give way to the more efficient ones. Such conclusions are invalidated by the familiar principles of comparative advantage and by other concepts underlying interregional spatial equilibrium analysis.

Another concept needing clarification is the relation between stabilizing forces, average cost, and supply functions. When uncertainty is reduced, the reservation price farm operators charge for their entrepreneurial service is lowered. Consequently, the real average cost and marginal cost are reduced. This has the effect of shifting the supply curve to the right, so that a larger quantity will be produced at a given price. This line of reasoning is essential to an accurate anticipation of the production response that will result from a change in price-support policy. For example, when a commodity is first brought under price support, one initial effect is the elimination of, or great reduction of, price uncertainty. This in turn reduces one of the resource costs, namely, the reservation price of the uncertainty-bearing or entrepreneurial factor. The supply curve is thus shifted to the right by an amount depending on the degree of price uncertainty existing prior to enactment of the price support. Thus, if price-support levels are established on the basis of the supply function as it existed earlier, then the output is likely to be much greater than anticipated, even taking into account technological change and rising yields.

Misinterpretations often result from failure to recognize entrepreneurship as one of the factors of production. When the perfect-knowledge assumption is relaxed, the conventional classification of resources as land, labor, and capital should be extended to include entrepreneurship (risk-taking or uncertainty-bearing). Imputing residual returns to one of the usual factors such as labor or land or capital often leads to some peculiar findings, because entrepreneurship is not recognized as a permanent part of the residual claimant. An example taken from an analysis of irrigated cotton farms in the Texas High Plains will help to clarify this concept (80). Profit is defined in that study as the return to the farm operator for the management functions of coordination and supervision and for bearing the responsibility for a profit or loss from the farm's operation. In calculating total cost, each resource is priced at market rates on an annual cost basis, including an opportunity cost for the operator's labor.

Total profits earned by various sizes of farms analyzed are presented graphically in figure . [illegible] shortrun average cost curves are included to facilitate comparison of average costs and total profits per farm. The total profit scale is indicated on the right vertical axis, and the average cost scale (total cost per dollar of output) is indicated on the left vertical axis. When the two curves are considered simultaneously, several facts become evident. Average cost is almost constant over a wide range, from $60,000 to $235,000 of output, representing cotton farms of 440 acres to about 1,800 acres. Throughout this range, the cost:revenue ratio (ratio of



NET PROFIT CURVES COMPARED WITH AVERAGE COST CURVES

Irrigated Cotton Farms, Texas High Plains

SOURCE: (80)

Figure 2

total cost to the income generated by incurring this cost) is less than 1.0. Therefore, the total profit curve has a rather constant upward slope along this range of output. The 1-man 440-acre farm with 6-row machinery achieves an average total cost as low as any of the larger farms. But the larger farms earn considerably higher profits, totaling more than $67,000 annually for a 5-man farm with more than 1,500 acres of cropland.

These results were based on 1967 projected prices and advanced technologies available at the time the analysis was done in 1962. Although profit potentials and size-efficiency relationships for earlier periods are not available, the relationships developed here probably apply in general to earlier years in that farming area. More specifically, it seems likely that during the period 1954 to 1959 farms with more than 1,000 acres of cropland were more profitable than similar type farms of smaller size.

During this period, the number of farms with 1,000 or more acres of cropland increased by 5 percent, while the number of farms with from 500 to 999 acres increased by 10 percent. Why did this profit potential not draw more firms into the largest size class? Perhaps this question can be answered partly in terms of the opportunity cost and reservation price concepts. No one but the individual farmer himself knows the opportunity cost or reservation price which he places on his labor, management, and entrepreneurship. Following Haavelmo (49), one can see that a possible reason why so few firms have expanded to very large size is that the promise of a greater profit potential is somewhat offset by the uncertainty and the difficulty of coordinating the operations of these large firms. In other words, the profit potential may be less than the sum of (a) the opportunity cost or reservation price farmers place on their labor and on their task of supervising and coordinating the efforts of several hired men, plus (b) the reservation price they place on their entrepreneurial services.

The Farm as a Goods-and-Services Firm

Now we turn to the other end of the size continuum, and examine ways in which the changing form of the farm firm has led to changes in the structure of agriculture in general, and particularly in the nature of small farms. The modifications of traditional theory offered here should also provide a framework for understanding size-efficiency relationships and for initiating research on the changing structure of U.S. agriculture.

The farm operator is usually envisioned as being engaged only in the production of goods, not of outside services, owning or otherwise controlling all the durable factors as fixed resources, and using these resources to provide services only for his own farm. A more realistic concept views the farm firm as (a) a producer not only of goods but also of various services, such as custom work and off-farm jobs, and as (b) having the possibility of hiring various resource services in the amounts needed, as well as owning and operating durable resources.

This broader range of economic activities allows the firm more possibilities for achieving harmonious organization of its operations. For example, when a farmer custom hires all or part of an operation whose succeeding stages tend to overlap, he can overcome peak workloads and can achieve greater harmony among the sequential stages. He can also obtain a larger output from each of the competing farm enterprises. Custom hiring allows the operator to expand an enterprise for which certain operations (such as harvesting of fresh vegetables) must be performed within rather narrow time limits, or an enterprise whose requirements for labor and machinery over the course of the production period would conflict with other enterprises.

Coordination is frequently the limiting resource that necessitates the hiring of custom services. If two or more simultaneous operations each require a considerable amount of coordination, the result may be higher cost or lower revenue because of improper or untimely execution of the operations.

On the other hand, a farmer who owns (or otherwise controls) a large, high-capacity machine is often able to perform certain operations so rapidly that he and his equipment are idle between sequential operations. This gives rise to excess labor and machine capacity that can be sold to other farmers as custom service. A part-time off-farm job can be viewed in a similar light, as a means of selling unused services of a fixed resource (in this case, the operator's labor) to another firm.

Under this concept, the output of a firm includes the income from custom work done plus wages from off-farm jobs in addition to gross income from the sale of farm products. Custom services hired are included in the direct or variable cost items. A farm viewed as a goods-and-services firm may have a lower average total cost than would the same farm viewed as a strictly goods-producing firm, since wages and income from custom work raise the gross income.

At one end of the goods-and-services spectrum are the farms whose sole source of income is the sale of farm products. At the other end of the spectrum are the specialized custom service firms. In between are farms whose income from the sale of farm products is supplemented by custom work or other services.

Emergence of Specialized Service Firms

Familiar examples of operations that are often performed by specialized custom service firms are grain harvesting and application of pesticides and fertilizers. Less familiar examples are seedbed preparation for vegetable crops, fruit-tree pruning, and artificial insemination. In fact, many stages previously performed as part of the farm operation emerged as processing or marketing functions when specialized firms took over their performance. Consider, for example, grading and packing of fruits and vegetables, transporting and slaughtering of livestock, and the separating and churning of cream. In some areas and for certain types of farms, contract or custom service firms are available to perform virtually every task involved in growing a crop, as is the case for vegetable farms in the Imperial Valley of California (20). In other farming areas, relatively few production operations have been assumed by such specialized service firms.

Custom operators and specialized service firms are often able to offer their services to farmers at cost-reducing rates. This is possible when there are important economies of size in the operations, and when the service firm can operate at or near full capacity. Under some circumstances, the farm operator can reduce his variable costs by hiring custom work done, even when custom rates are higher than the average variable cost at which he could perform the same service. For example, if the hiring of custom work relieves a bottleneck and allows expansion of enterprises that compete for limiting resources during a peak work period, and if the resulting increase in revenue is more than the cost of the custom work, then the firm's profit has been increased.

In general, specialized firms tend to emerge whenever they can take over the performance of a stage of production or series of stages and can earn a profit by doing so. Such a firm will succeed if it can perform a sufficiently large volume of service at a price high enough to overcome the high fixed cost of the specialized machinery and equipment. A relatively steady flow of business throughout the year is necessary to attain this volume. Some firms achieve this steady flow by migrating from one area to another to take advantage of differences in planting and harvesting dates. Custom wheat harvesting firms, for example, move northward through the Great Plains with the maturing date of wheat.

Rising Importance of Off-Farm Work

Viewing the farm as a goods-and-service firm also helps to explain the high and rising importance of off-farm jobs and custom work as sources of farm family income and profit. Farmers who employ increasingly productive machine technologies, but fail to make proportionate increases in the acreage they operate, often have unused labor available for sale to other firms in the form of hired labor, or they may be able to "sell" excess machine capacity by doing custom work. Pooling the income from all three sources--sale of farm products, custom work performed, and off-farm work done for hire--gives the gross income for a goods-and-services firm. The firm's costs are also increased by such items as operating costs and use-depreciation on the machines used for custom work, and transportation and other costs associated with the operator's off-farm job. But whenever the increase in cost is less than the increase in gross income, the firm's total profit is increased. From the efficiency point of view, whenever the increase in cost is less than proportionate to the increase in gross income, the firm's cost:revenue ratio or average total cost is decreased.

Off-farm jobs are an increasingly important source of income even among operators of farms producing $10,000 or more worth of farm products annually. During the 1950's, the proportion of these farm operators who had off-farm jobs increased from 21 to 27 percent. The number working off their farms more than 100 days a year increased from 7 to 10 percent. Both off-farm jobs and custom work are important sources of net income to these farm operators; in 1959 they accounted for roughly $90 and $20, respectively, out of every $1,000 of net income earned by farm-operator families in this class (128).

Persistence of a Large Number of Small Farms

An important principle of microeconomic theory underlying economies-of-size analysis is that average total cost must not exceed average revenue if a firm is to remain in production indefinitely. The usual conception of the small farm as a firm engaged only in the production of goods necessarily gives rise to an average cost curve with a steep downward slope, implying that small farms are inherently inefficient and therefore bound to disappear quite rapidly. The empirical studies presented later in this report indicate that in the long run the break-even point for average cost and average revenue per unit occurs well beyond $10,000 of annual gross sales of farm products. On the basis of conventional microeconomic theory, this would lead one to expect farms producing less than $10,000 of gross sales to disappear rapidly. However, small farms have continued to exist in rather large numbers. During the 1950's, the number of commercial farms with less than $2,500 of gross sales (representing the main occupation and source of income to the operator) declined by 68 percent, leaving only 409,000 such farms by 1959. However, the number of farms with $2,500 to $10,000 of gross sales declined by only 20 percent, leaving 1.3 million such farms by 1959 (93, table 15). The continued existence of nearly 1.8 million commercial farms producing less than $10,000 worth of gross sales seems to indicate a lack of consistency between theory and observed fact.

The persistence of a large number of small and part-time farms on the national scene becomes easier to explain when the farm is viewed as a goods-and-services firm, thus allowing for the broader range of economic activities that farm operators actually engage in. Empirical studies have shown that relatively small farms can achieve the ultimate in economies of size when sufficient custom service is available for timely performance of farming operations (20, 66). Furthermore, off-farm work is especially common among the operators of small farms. Among operators of farms with $2,500 to $9,999 of gross farm income in 1959, one out of three did some off-farm work during the year, and one-sixth worked off their farms more than 100 days (93, table 13).

METHODS OF ANALYZING ECONOMIES OF SIZE

A wide variety of analytical procedures has been employed in analyzing economies of size. This variation comes in part from the diversity of purposes for and situations in which these studies have been conducted. A slight difference in focus or in the nature of the production setting can greatly alter the appropriate procedures. Likewise, the analytical procedure will dictate the kinds of inferences that can be properly drawn from a study. No single analytical procedure is best for all economies-of-size studies. The optimal method depends on the specific situation involved--the nature of the production processes being considered, and the kinds of questions the study is supposed to answer. The purpose of this section is to discuss and compare the techniques most often employed.

The widely used concept "returns to scale" should be mentioned briefly. Economists frequently fit a least-squares Cobb-Douglas production function to input-output data and then examine the sum of the exponents (production elasticities). If this sum equals 1.0, this is taken as proof of constant returns to scale. Decreasing, constant, or increasing returns to scale are indicated if the sum is less than, equal to, or greater than unity, respectively. In the concept of constant returns to scale it is assumed that if all inputs are increased by a constant proportion, k, then output will be increased by the same proportion. By definition, returns to scale are decreasing if output increases by less than k and increasing if output increases by more than k.

Herein lies the first weakness of the returns-to-scale concept: it applies only to situations where all inputs are increased by the same proportion. Such situations seldom occur in the real world. Furthermore, the returns-to-scale concept applies only at the geometric means of the variables--that is, for the "average" size of firm observed. The sum of the elasticities gives no indication of the relative efficiency of larger or smaller size of firms.

Another weakness is that the results are strongly influenced by several rather arbitrary decisions regarding the number and form of the variables included in the equation, the range of sizes represented by the basic data, and the algebraic form of the equation fitted to the data. Thus, the results are not determinate in an objective sense.

Perhaps the most serious weakness of this approach is its inability to accommodate discontinuities such as those resulting from discrete increments of land. The production functions used in this approach assume that the resources and products are infinitely divisible (136, p. 2). Considering all these limitations, the concept of returns to scale is considerably less useful than the concept of economies of size of scale as used in this report.

The Survivorship Technique

A method presented by Stigler (122) and Saving (111, 112), called the survivorship technique, has the advantage of being both simple and direct. It also has several weaknesses. This technique is predicated on the idea that competition among firms will sift out the more efficient sizes. Size of firm is measured in terms of the firm's capacity as a percentage of industry capacity. Firms are stratified so that both the number of firms in each size class and the percentage of the industry's capacity represented by each size class may be tabulated. Tabulations are made for two or more points in time. Size classes that exhibit a declining proportion of the industry's capacity through time are deemed to be inefficient. Conversely, an increasing proportion of the industry's capacity in a larger size class is taken as prima facie evidence of efficiency and the attainment of economies of size.

Stigler provides examples of this method from many industries. His data for the petroleum refining industry show that in 1947 some 130 firms were in the size class representing less than one-tenth of 1 percent of the industry's capacity. Data for later years show that the number of firms in this smallest size class declined sharply; the percentage of the industry's total capacity found in this size class declined also. In contrast to this trend, an increase in relative importance was exhibited by the class of slightly larger firms, each of which had from 0.50 percent to 0.75 percent of the industry's capacity. All together, this size class had 3.04 percent of the industry's total capacity in 1947, and 5.05 percent in 1954. The class of largest firms (each having 10 to 15 percent of industry capacity) showed a slight decline in percentage of total industry capacity from year to year, slipping from 11.65 to 11.06 to 10.72 percent in 1947, 1950, and 1954, respectively. These and other data are offered as evidence that very small petroleum refining companies are not as efficient as the larger ones, and that the very large firms are no more efficient than middle-sized ones (122, p. 68).

This type of proof is not very informative or convincing, because it leaves several pertinent questions unanswered. First, did those very small firms disappear because they were inefficient? It seems entirely possible (although perhaps not likely) that many of the very small firms disappeared from the ranks of the very small size class by a process of growth, expanding their operations and being classified in a larger size class in the succeeding periods. Furthermore, conceivably these small, growing firms were producing more efficiently (that is, at lower average total cost) than any of the larger firms, and could even have experienced a decline in efficiency (rise in average total cost) as their size increased. This is a possibility when (a) the envelope curve reaches its absolute minimum at a very small size of firm, as is true for some types of farms, and (b) when the average revenue curve is not forced down to the point of tangency with the envelope curve at the low point of the latter. When the average revenue curve lies above the minimum point on the average cost curve, firms can achieve a higher profit by extending output beyond that minimum point, even though they experience higher average total cost than the smaller firms operating at the low point of the average cost curve. Thus, it is possible that firms could disappear from a small size class by shifting to larger and more profitable, but not necessarily more efficient, operations. This possibility raises questions as to the reliability of the survivorship technique as a means of pinpointing efficient sizes of firm. Findings developed using this technique would be more credible if they could be shown to agree with the results of more refined analysis of representative firms or synthetic firms of various sizes.

The size-efficiency relationships may be masked by other factors. Declining relative importance of a given size of firm might result from many factors other than the inherent inefficiency of that size of operation. Location, access to resources and markets, quality of management, productivity of labor, degree of utilization of plant capacity, and physical design of the plant could all vary among the observed plants.

Perhaps the most serious weakness of the survivorship technique lies in its measure of size: A firm's size is measured by its proportion of the industry's total productive capacity. The measure is highly elusive, particularly when the industry's capacity is changing. Furthermore, the results are of little meaning to planning entrepreneurs who seek the technical specifications of efficient and profitable plants. The findings give no hint as to whether the more efficient size firms are composed of a large number of small plants, or a few very large plants.

All these weaknesses of the survivorship technique would be largely alleviated if size of firm were measured in physical units, and if this technique were used in conjunction with the more incisive types of cost analysis discussed below. Standing on its own, this technique has little to recommend it as a method of analyzing economies of size. The only inferences that one is justified in drawing from a survivorship analysis are those regarding changes in the concentration of productive capacity in different size classes, where size of firm refers to the percentage of the industry's capacity found in the individual firm.

Direct Analysis of Actual Firm Records

Many researchers have attempted to determine economies of size directly from a sample of actual firm records. This procedure has the advantage of being rather quick and inexpensive if the farm records are readily available. To some people, the technique's direct connection with actual firms makes the results seem more reliable than the results of synthetic firm analysis, in which hypothetical plants are constructed on the basis of economic and engineering data reflecting advanced or better-than-average technologies. However, this direct accounting method has rather severe shortcomings, as illustrated by the following example.

Records of nonfeed costs were obtained from about half of the feedlots operating in Arizona during 1957 (91). In all, 94 feedlots were observed, representing 82.5 percent of all the cattle fed in the State that year. Average total cost per ton of feed fed was calculated for each of the sample feedlots. Size of feeding operation was measured in tons of feed fed during the year.

The largest class of feedlots fed an average of about 16,500 head per year. These large feedlots were found to have less than one-third as much nonfeed cost per ton of feed fed as did the smallest feeding operations. However, this size-efficiency relationship is confounded by two factors. First, other studies have shown that average cost declines sharply as percentage utilization of facilities is increased. In this study, larger feedlots were observed to be operating closer to full capacity than were the smaller operations. Therefore, much of the difference in average cost attributed to size of feedlot is actually the result of fuller utilization of facilities. Second, it is widely recognized that average cost varies with length of feeding period, classes of feeders fed, and the types and quantities of feed used. The observed feedlots varied widely in regard to all these factors.

Slightly different versions of this method have been applied in many other studies. In each case, the findings have been subject to similar limitations. As a result of these weaknesses, this procedure provides very little useful information about the effect of farm size per se on the average cost of production.

Composite Firm Budgets From Actual Firm Records

In a slightly modified approach, composite firm budgets are developed from actual farm records. The farm records are first separated into size classes. Within each size class a composite farm is developed using averages of the various recorded items (total acreage, investment, acres of each crop, yields, cash expenses, etc.). Then the average cost per unit of output of the composite farm in each size class is calculated, using assumed prices or observed averages. These results are then assumed to be "typical" of farms in the respective size classes. Comparison of these typical costs yields a size-efficiency relationship.

For example, Maier and Loftsgard (81) analyzed the costs and practices of potato producers in the Red River Valley of North Dakota. Data from 82 selected growers were separated into three size groups (based on potato acreage) to facilitate comparisons of costs and practices as potato acreage per farm increased. The average characterisitics, practices, and yields for each size group were used to form three composite farms to represent the three size groups. Fixed machine costs were allocated to the potato enterprise on the basis of the percentage of annual use devoted to that enterprise. Average cost was calculated as cost per hundredweight of potatoes. Operator and family labor were charged at local wage rates, and operator management was included in the residual claimant.

Farms in the largest size class, with 321 to 1,005 acres of potatoes, were found to have lower average costs than the smaller farms (table 2). However, these differences in cost were attributable not only to differences in size, but also to differences

Table 2.--Size-efficiency relationships for potato farms in North Dakota

Item	Unit	Small-size group	Medium-size group	Large-size group	All growers
Range in potato acreage	Acre	95-160	161-320	321-1,005	95-1,005
Average potato acreage	do.	122	235	517	287
Total costs per acre	Dollar	107.35	105.35	104.45	105.15
Average 1960 yields per acre	Cwt.	130	140	150	145
Total cost per hundredweight	Dollar	.83	.75	.70	.73

Source: (81).

in practices. For example, larger farms used more fertilizer and made more frequent chemical applications, and consequently achieved higher yields than the smaller farms. Although this study is very informative and useful for many purposes, it provides no indication of the potential efficiency attainable by farms in different size classes, in cases where all sizes use comparable technologies.

Studies of this kind differ considerably in the specific procedures and assumptions employed; however, they share several basic weaknesses. One is the possibility of inaccurate cost data. Different firms employ a variety of cost accounting procedures. Particularly troublesome are differences in handling resource inventories. In reporting purchases of certain inputs, a firm may not be accurately reporting the amounts actually used in production, because of changes in carryover inventory.

A more serious defect is that the composite farms do not accurately reflect the actual average cost of farms in their respective size classes. The class intervals are established subjectively so that the decision as to whether a specific farm is averaged in with a smaller or larger group is a matter of judgment, and the class averages are influenced by this judgment. Furthermore, as wider class intervals are used, the size-efficiency relationship is obscured. As narrower intervals are used, the number of farms in each interval is reduced, thereby making the results more vulnerable to minor fluctuations among farms as well as to errors in observation. Another source of inaccuracy is that, since several characteristics of individual farms are being averaged, the resulting composite firms have an aggregation bias, making them inaccurate replicas of the group of firms they represent.

Another basic fault of this method is that the composite farms do not accurately reflect the potential efficiency attainable by farms of various sizes. Many existing farms are using outdated machines and buildings, and practices that are grossly inefficient by modern standards. Some farms are operating at less than full capacity, or with inefficient combinations of enterprises. Averages calculated on the basis of data from these farms are not good indicators of the efficiency that a planning firm could expect to achieve with various sizes of operation.

Standardized or Adjusted Data From Actual Firms

Several techniques have been devised in an attempt to compensate for the limitations of cost data obtained from actual firms. In some cases, the data from actual firms can be adjusted to take account of such deficiencies as excess capacity or underutilization of facilities, and differences in method of reporting cost rates and prices in the firm records. For example, Carter and Dean (20) included a degree-of-utilization variable in their multiple regression model. This variable indicates the percentage of available machine capacity that is actually utilized. In calculating points for a cost curve, this utilization variable is set at 100 percent, so that each size of farm is evaluated on a somewhat comparable basis.

In another study, Dean and Carter (31) compared two alternative analytical procedures--a regression analysis using adjusted data from actual farm observations, and a synthetic-firm budgeting analysis. Sample data for the 1958 crop year from producers of cling peaches were adjusted to eliminate the effects of differences in proportions of bearing and nonbearing peach trees. Also, the interest rates and depreciation formulas used in the farm accounts were standardized to conform with the procedures used in the budgeting analysis. The main difference in the results of the two analyses is that the regression analysis of actual observations indicates greater reductions in average total cost as size increases. In part, this is probably a result of the mathematical form of the cost function fitted (the Cobb-Douglas). However, it also reflects the substantial overinvestment in (or underutilized capacity of) machinery evident on the small farms. In the synthesized-budget analysis, the machinery investment on the small farms was fitted more exactly to requirements than is often the case in practice. Therefore, it is apparent that the synthetic-firm analysis provides a more accurate comparison of the potential efficiency attainable by each size of farm, when all sizes are efficiently organized without excess capacity. The synthetic-firm analysis approach is now examined in detail.

The Economic-Engineering or Synthetic-Firm Approach

Synthetic-firm analysis is an appropriate technique when either of two research questions is asked: (1) What is the average cost per unit of output or profit that firms of various sizes could potentially achieve using modern or advanced technologies, or (2) what are the differences in average cost per unit of output attributable strictly to differences in size of firm, and not to differences in degree of plant underutilization, use of obsolete technologies, or substandard management practices.

In the synthetic-firm approach, budgets are developed for hypothetical firms, using the best available estimates of the technical coefficients--resource requirements and expected yields--and charging market prices or opportunity costs for all resources. Hypothetical firms are developed in much the same way that an architect or engineer bidding for a construction contract designs a proposed factory or bridge, and estimates the performance and cost of the finished product.

When the planning firm has few alternative choices, the synthetic firms can be constructed by using budgeting techniques.13/ However, when a large number of enterprises, or alternative technologies or levels of resources are considered, manual budgeting becomes burdensome and time consuming. Use of linear programming can greatly simplify the computations, particularly if a computer is used.14/ With a shift from manual budgeting to linear programming, each enterprise or firm activity budget is represented by a column in the linear programming tableau.

Every study of economies of size may require a unique model to reflect the peculiarities of the data involved. Several basic types of model have been employed. For comparison with other types, a basic cost-minimization model is first presented in detail. This model is designed for multiple-product firms allowing variable proportions of resources and products.15/ Specific plant sizes are recognized. Short-run economies are obtained through increasing utilization of a given plant, up to its

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13/ This method is widely used. See for example Bressler (9). For a more recent example, see Hunter and Madden (65).

14/ Conventional procedures are discussed by Heady and Candler (55).

15/ This model is discussed in detail with the aid of an actual example by Davis and Madden (29).

full capacity. Determining the longrun economies that are obtained as plant size increases, with all resources variable, involves comparing the efficiency of various plant sizes. A specific plant is represented by a given level of the fixed resources. Various degrees of utilization for a given plant may be represented by different levels of gross income. Thus, it is possible to specify the plant size and level of gross income in a cost-minimizing linear programming model and to compute the least-cost combination of products and variable resources for that specific plant and level of gross income. Then by calculating the cost:revenue ratio (total cost[16] divided by gross income), one point on the shortrun cost curve is determined for the specific plant size being considered. Additional points on the shortrun cost curve are determined by setting the level of gross income at various levels representing different degrees of utilization of the plant, and computing additional linear programming solutions. When a shortrun average cost curve is plotted for this specific plant size, the level of gross income is shown on the horizontal axis and the cost:revenue ratio on the vertical axis, as in figure 1 (p. 3).

Shifting to the next shortrun curve, fixed resources are set at new levels defining the next plant to be considered. Then successive linear programming solutions are computed for each of several levels of gross income, each representing a different degree of plant utilization. This process is repeated until a shortrun average cost curve is determined for each plant size. Then the envelope curve is plotted as the tangency of the shortrun curves.

This model has been used for developing average cost curves in several studies of economies of size. It can be described symbolically as follows: The predetermined data include the technical input-output coefficients (a_{ij}), variable costs (c_j), average gross revenue for real activities (g_j), and resource constraint levels (b_i). The problem is to determine the activity levels (x_j), such that

$$\sum_{j=1}^{n} a_{ij} \quad x_j \leq b_i, \text{ and}$$

$$\sum_{j=1}^{n} c_j \quad x_j = \text{minimum},$$

subject to the following constraints:

1. $x_j \geq 0$, for all j.
2. $\sum_{j=1}^{n} x_j g_j = G$, a specified level of gross income.

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[16] Total cost is calculated for each programming solution as the sum of the costs incurred in the objective function plus the lump sum of costs pertaining to the plant size being examined.

3. b_i = constant for the i's representing certain fixed resources and

   $b_i \geq 0$ for other resources involved in "buying" activities,

4. Levels of the fixed resources are set at different quantities representing the various plant sizes to be analyzed:

   a. There are type-of-farming constraints on source of gross income, assuring that at least a specified percentage of gross income is produced by the main enterprise.

   b. The current farm price support programs can influence the area of land available for certain crops, and prices received for supported commodities.

The programming analysis determines the least-cost method of producing specified levels of gross income with certain size-determining fixed resources. Therefore, it can be said that the optimizing criterion is minimum cost per dollar of gross income.[17]

Selection of appropriate gross income levels for a given plant size is accomplished largely by trial and error. However, a useful guide may be obtained using the unrestricted profit-maximization model described below, with the fixed resources set at appropriate levels to represent the specific plant sizes for which cost curves are to be derived.[18] This model employs the same coefficient (a_{ij}), average gross revenue (g_j), and resource levels (b_i). In this case, we also define r_j as average net revenue of the activities. Then the problem is to determine the activity levels x_j such that

$$\sum_{j=1}^{n} a_{ij} \; x_j \leq b_i, \text{ and}$$

$$\sum_{j=1}^{n} r_j x_j = \text{maximum.}$$

The constraints used are the same as those stated above, except that in the second constraint, gross income is not held constant. Instead, the program determines the one level of gross income which gives the largest profit attainable with the specified levels of the fixed resources. At that specific level, this model gives exactly the same solution as the basic cost-minimization model. However, this unrestricted profit-maximization model is by definition irrelevant for more than one level of gross income. Only one point on a cost curve or revenue curve is determined. It is necessary to return to the basic cost-minimization model to determine other points needed to specify the cost curve.

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[17] In a special case of this model, one of the resources is kept at a predetermined level throughout the analysis. For example, in the model developed by Miller and Nauheim (87), land is fixed at 1,600 acres (84).

[18] Miller and Nauheim also used this model (87).

The profit-maximizing level of gross income in the solution is useful in spotting the relevant range of gross income levels for each specific plant size. The profit-maximizing level of output will occur slightly to the right of the low point on the shortrun average cost curve in all cases where this low point lies below the average revenue curve. 19/ The profit-maximizing level of gross income represents a level of plant utilization on the upward sloping portion of the shortrun average cost curve. Other values of gross income slightly above this level and for a considerable range below this level may be selected. Each of these levels of gross income should be specified as an equality in the gross-income row of the basic cost-minimization model. A separate cost-minimizing solution is computed for each of these levels, to determine points on the shortrun average cost curve. Then the same steps as for the cost-minimization model are followed.

Another model sometimes used in research such as this calls for minimization of the acreage of land used. This model employs the same set of data as the previous models. Net income is specified to be at one or more levels:

$$\sum_{j=1}^{n} x_j r_j = \text{constant.}$$

Land requirements (L_j) are specified for all activities. Then the optimizing criterion is

$$\Sigma \quad x_j L_j = \text{minimum.}$$

Other constraints include the first and third, and sometimes the fourth and fifth given above for the basic cost-minimization model.

This land-minimization model is useful for determining the largest number of farms, each earning a specified minimum net income, that can operate in a given area (124). One advantage of this model is that land values are not specified, thus eliminating one possible source of imputation error in the analysis. However, this does not provide for the simultaneous minimization of the cost of more than one resource, unless a resource price ratio is assumed, making this model a special case of the more general cost-minimizing model.

Several ingenious variations have been built into programming models to allow for the specific assumptions appropriate to the individual studies. One technique commonly employed is to specify rotations (such as corn-oats-meadow) and allow each vector to represent a specific rotation and a variation in some related technology (such as irrigation versus no irrigation). The programming model selects the

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19/ In general, the maximum profit is achieved where the marginal cost curve intersects the marginal revenue curve from below. For the firm in atomistic competition, the marginal revenue curve is a horizontal price line. When price is above the low point of the average cost curve, the marginal cost curve passing through this low point intersects the marginal revenue curve somewhere to the right.

optimum number of acres for each rotation and related technology alternative. This allows variable proportions among products and resources (3), although these can be specified a priori if desired (36).

Numerous automatic programming techniques have been incorporated into economies-of-size models. For example, Carter and Dean (19) used variable capital programming and calculated the maximum gross income per dollar of capital for various levels of investment. Although it is not an economies-of-size analysis, a study by Heady and Loftsgard of farm planning for Northeast Iowa (58) is an excellent example of the use of variable resource programming techniques. Barker (2) successfully combined variable resource and variable pricing techniques to derive average cost curves. Mixed integer programming seems to hold considerable promise for economies-of-size analysis. For example, Madden and Davis (80) achieved integer values for irrigation wells, complements of machinery, and 40-acre increments of land, using successive approximations with a conventional linear programming code. Mixed integer programming codes are now available at some computer installations. With these and other improvements in programming technology becoming increasingly available, future economies-of-size analysis will become computationally easier and cheaper, and less abstract models will become feasible.

Point Versus Interval Estimates of Cost Curve

The typical approach used in economies-of-size analyses is to develop point estimates of the average cost curves. That is, the relationship between average cost and output is presented as a single curve. This procedure indicates a single average cost for each level of output, based on specific assumptions regarding prices, yields, and other technical relationships.

As an alternative approach, several different cost curves may be developed, each representing a specific combination of high or low product and resource prices and different yield assumptions. This approach gives rise to an entire family of point-estimated cost curves, and the relationship between output and average total cost can be represented as a curved band, rather than a curved line. The width of this band at any given level of output indicates the range of likely outcomes of average cost under the different combinations of price and yield assumptions.

This type of presentation is useful in that it warns the reader how high or low the average cost could be in any given situation. Such warnings should be taken into account by firms in their planning stages--particularly those most vulnerable to an unfavorable outcome. In many cases, entrepreneurs would choose an alternative with relatively lower expected net revenue and lower likelihood of failure, in preference to an alternative offering higher expected earnings but also higher likelihood of failure.

A useful refinement of this interval estimation approach is to develop probability confidence intervals to indicate the expected variation in average cost for given levels of output. This approach assumes that one or more of the important resource or product prices or yields is subject to some degree of random variation. Thus, the variance of prices and yields, and consequently the variance in income and average total costs, is taken into account. 20/

EMPIRICAL STUDIES OF ECONOMIES OF FARM SIZE

The foregoing theoretical and procedural discussions have set the stage for analysis of a selected group of empirical studies of crop farms, beef feedlots, and dairy farms. The discussion is designed to clarify the theoretical treatment, presented earlier, and to give the reader a more adequate basis for interpreting such studies. It is hoped that researchers will gain insight into the advantages and disadvantages of the various analytical procedures as an aid in planning future studies of economies of size.

A six-point frame of reference is used in discussing each of the studies.

1. Study area, type of farming, and date of study. An empirical study is usually applicable only to the area and type of farming for which it was conducted. Production techniques, yields, and costs change rapidly. Thus, it is important to recognize that empirical results are time-dated, being based on production practices and technologies employed during a specific period in time.

2. Range of farm sizes examined. In many of the studies, only the smaller sizes of farms were examined; a few studies extended to very large sizes. Proper interpretation of the resulting size-efficiency relationship requires that the size range examined be explicitly stated.

3. Method of analysis and key assumptions. As indicated earlier, the size-efficiency relationships indicated by study results are strongly influenced by the choice of analytical procedures and assumptions. One of the most crucial decisions regarding procedure is whether an actual-firm or synthetic-firm (economic-engineering) approach is selected, and whether current practices or advanced technologies are assumed. Also, the interpretation of the cost and profit data depends on the choice of residual claimant, and on the rates of return assumed for the operator's labor, management, and capital if these resources are excluded from the residual claimant. As mentioned earlier, the average costs per unit of production,

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20/ Examples of this approach are given by Carter and Dean (18) and Moore (89). In Moore's study, average total cost is represented by the cost:revenue ratio. Variance of average total cost is then calculated by assuming that the numerator (total cost) is constant and that the denominator (gross income) varies. This simplifying assumption leads to a slight understatement of the true variance of average cost. If both the numerator and denominator of this ratio are considered as variables subject to random variation, then the variance of average cost is the variance of a ratio of two variates. This concept is discussed by M. G. Kendall in his discussion of the distribution of a ratio (71, p. 248).

or the cost:revenue ratios, are made smaller for all farm sizes by inclusion of additional factors in the residual claimant. And the left-hand portion of the envelope curve, representing the average cost for smaller farms, is lower when the residual claimant includes all the operator's personal services (labor, management, and risk-bearing) than when operator labor is excluded.

4. Size-efficiency relationship. Results of the studies are examined for their findings on (1) how large a farm must be to achieve the utmost efficiency and (2) whether the longrun average cost curve continues to decline throughout the size range, or reaches a minimum at a relatively small size of operation and remains more or less constant through the very large size range. With very few exceptions, the latter seems to be the typical size-efficiency relationship.

5. Size-profit relationship. Results of the studies are further analyzed for indications of the relative profitability of the various sizes of farms and of how large a farm must become to be profitable. Most studies show that even a 1-man or 2-man operation that is well organized can be quite profitable if prices do not sink to abnormally low levels and if modern technologies are used.

6. Changing size distribution of farms. Another point sometimes noted in discussing each study is the changing size distribution of the farms studied. When the available data permit, the size ranges that seem to be attracting additional farmers are compared with those that appear to be efficient and profitable according to the empirical studies. (This last step is a refinement of Stigler's survivorship technique, discussed earlier.)

Crop Production

This section contains a discussion of economies of size in a number of different crop farming situations. Seven types of crop farms in five States are examined. The acreage that can be operated with a given labor supply varies widely from one farming situation to another--from the highly intensive peach orchards of California to the extensive wheat farms of Oregon. Capital requirements also vary considerably. In most of the farming situations examined, a modern and fully mechanized 1-man or 2-man operation can produce efficiently and profitably, achieving all or nearly all of the economies of size.

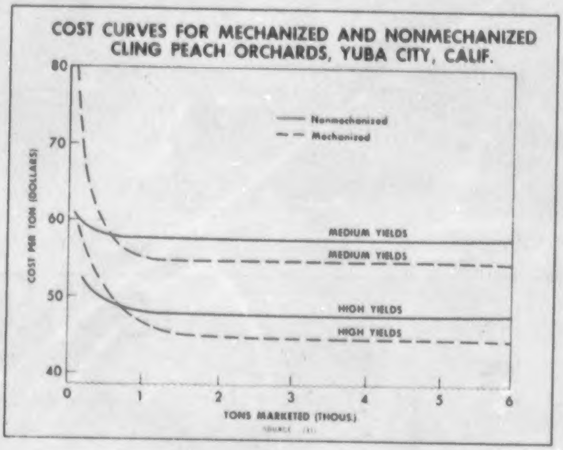
Cling Peach Production in California

In 1963 Dean and Carter analyzed the economies of size in cling peach production in the Yuba City-Marysville area of California (31). The size range of peach farms examined extended from 8 acres producing less than 100 tons to more than 400 acres producing over 5,000 tons of peaches annually. Synthetic-firm budgeting techniques were used to determine how the size efficiency relationships were influenced by changes in wage rates and the introduction of mechanized methods of pruning, thinning, and harvesting. The farm operator's personal services (labor, management, and risk-taking) were included in the residual claimant.

The basic synthetic-firm analysis showed that with the prevailing nonmechanized production practices, average total cost per ton of peaches declined as farm size increased up to about 60 acres--marketing about 715 tons of peaches (fig. 3). Beyond that size, slight reductions in harvesting costs and machinery investment per acre were realized, but these were offset by increases in costs of hired supervision (foremen). Therefore, average total cost with prevailing practices was essentially constant beyond 60 acres.

When mechanized practices were used, average cost declined up to a farm size of between 90 and 110 acres--basically a one-man operation. Mechanized methods gave lower costs than present methods for large farms. The break-even point between current and mechanized practices occurred at 55 acres. When 25 percent higher wage rates were assumed, the break-even point between present and mechanized methods occurred at a smaller size--25 to 30 acres. When assumed wages were increased by 50 percent, the break-even point was 18 to 20 acres.

Both average cost and profit were found to be strongly influenced by the level of yields. For budgeted operations of efficient size, average cost was about 40 percent higher with low yields than with high yields. Furthermore, orchards with low yields showed net losses for a very wide range of peach prices and orchard sizes. In fact, profit margins were found to be so low as to make selling the business a serious alternative for growers with low yields, regardless of orchard size. On the other hand, orchards of only 20 acres were found to be profitable with high yields. Assuming the average 1957-61 price of $62 per ton, a 20-acre operation earned $2,400 return to the operator's personal services. Net return on a 50-acre operation was $10,000, while the operators of 100-acre and 300-acre orchards earned $20,000 and $60,000, respectively.



COST CURVES FOR MECHANIZED AND NONMECHANIZED CLING PEACH ORCHARDS, YUBA CITY, CALIF.

SOURCE (1)

Figure 3

Possibilities for combining off-farm jobs with cling peach production were also examined. It was found that a farmer could handle 20 acres of peaches while holding down a full-time job, or 40 acres while working year-round at a half-time job. The analysis showed that off-farm work could greatly increase the income of small farmers. However, it was pointed out that the operator of a small farm could profitably sell his farm and revert to a full-time job, if he had a lucrative off-farm job opportunity.

Iowa Cash Grain and Crop-Livestock Farms

The two studies discussed below dealt with separate farming areas, but both used similar analytical procedures. The findings were limited to the economies of size on 1-man and 2-man farms.

Southern Iowa

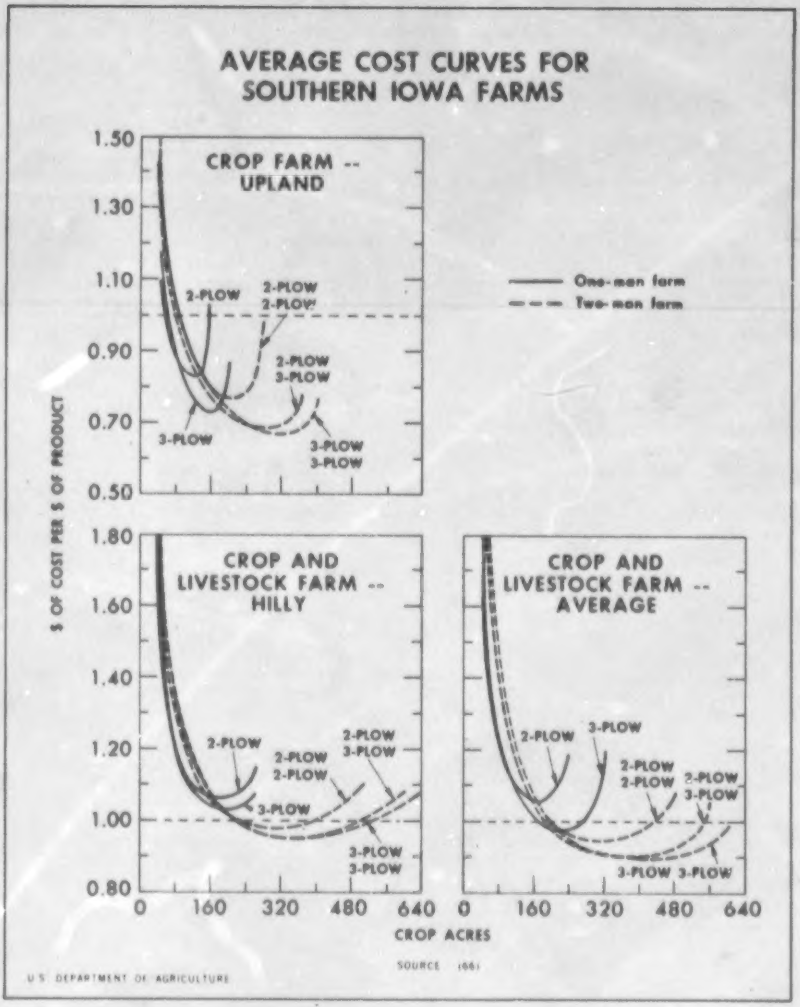
In 1960, Ihnen and Heady analyzed the economies of size for farms in nine southern Iowa counties (66). Synthetic-firm budgeting methods were used, with emphasis on choice of least-cost machinery combinations for various farm sizes. The enterprises considered included corn, oats, meadow, soybeans, and a beef-cow herd producing feeder calves. Operator management, risk-taking, and land were included in the residual claimant, so costs included a charge for operator and family labor, but not for land. Crop losses due to untimeliness of operations were also included as costs. (In most of the other studies, crop losses were treated only as a reduction in gross income, not as a cost.) Full ownership of most machinery items was assumed, initially, but for some operations custom hiring was considered for comparison. The budgeting analysis was conducted first under the assumption that only crop enterprises were used, and second, using both crop and livestock enterprises.

Farms with three different classes of topography--hilly, upland, and average--were considered in this study. The hilly mixture or hilly farm consisted primarily of rolling land with relatively little bottomland. The upland mixture or upland farm was composed predominantly of level to undulating upland soils. The average mixture or average farm consisted largely of rolling upland with smaller amounts of hilly and level upland.

The results were quite different in these three situations. On the hilly and average farms, the crop-livestock combination resulted in a lower cost:revenue ratio than crops only. For the hilly farms, average cost per unit of production declined to its minimum with a farm size of 320 to 360 acres, representing a 2-man operation with a 2-plow and a 3-plow tractor. The cost:revenue ratio was 0.95 at this point (fig. 4). One-man farms were shown to be incapable of meeting total costs in this area, under the basic assumptions allowing no custom hiring.

Similar results were obtained for the average farms, with a cost:revenue ratio of 0.90 occurring in the minimum average total cost range of 320 to 480 acres. In this case, however, a 1-man, 240-acre farm with a 3-plow tractor could break even. The cost:revenue ratio at this point was 0.97.

Entirely different results were obtained for the upland farms. First, farms budgeted with only crop enterprises achieved lower average costs than the farms budgeted with both crops and livestock. Second, the 1-man upland farms were



SOURCE (66)

U.S. DEPARTMENT OF AGRICULTURE

Figure 4

considerably more efficient than the 1-man hilly or average farms. Using a 3-plow tractor, a 1-man upland crop farm of 160 acres achieved a cost:revenue ratio of 0.62, which allowed a sizable profit margin for land and operator management and risk-taking. Two-man farms were slightly more efficient; a cost:revenue ratio of 0.57 was achieved with a 320-acre farm using two 3-plow tractors.

When custom corn picking and hay baling were allowed in the budgeting analysis, the 1-man farms were able to achieve considerably lower average costs than they could have without custom hiring. For example, the 1-man crop farm with 240 acres of average land achieved a cost:revenue ratio of 1.02 when all machinery was owned by the farmer. But when custom corn picking and hay baling were allowed, the cost:revenue ratio declined to 0.91. Custom hiring of these tasks greatly augments the timeliness of the farm operations, thereby reducing crop losses. In this case, custom hiring brought the ratio average cost below the 1.0 break-even line, making the difference between a net loss and a positive net return to operator management and land.

Custom operations reduced by 25 percent the acreage required to achieve minimum average total cost. In fact, the budgeting results indicate that on the average-soils farms most of the cost economies available in crop production could be achieved with (a) a 1-man, 1-tractor combination with 150 to 290 acres of cropland, or (b) a 2-man, 2-tractor combination with 290 or more acres of cropland. However, the cost reductions associated with custom operations would not be realized if there were extensive waiting periods for custom services. Thus, an adequate supply of competent and reliable custom service is essential to efficient operation on relatively small farms of this type.

Calculations of profit per farm for various sizes of operation were not presented in this study. The residual claimant was initially defined as operator management, risk-taking, and land. When land was removed from the residual claimant (thereby adding a land rent to total cost) the cost:revenue ratio rose above 1.0 for all 1-man farms, and was only slightly below 1.0 for the 2-man farms. This implies that the net return to operator management and risk-taking was negative for the 1-man farms, and very small even for the 2-man farms.

As with all cost analyses that assume a constant product mix, the cost curves obtained are suboptimal, because optimum resource combinations were not determined. Because of this, the resulting size-efficiency relationships do not reflect the maximum efficiency attainable by different sizes of farms. A more sophisticated analysis with a model that allows variable enterprise proportions would have given somewhat more accurate results, and consequently the cost curves would have been lower in some cases than the ones derived in this study.

Western and Northeastern Iowa

Using budgeting techniques similar to those used in the southern Iowa study discussed above, Heady and Krenz (57) calculated average cost curves for the Carrington-Clyde soils area in the northeast quarter of Iowa, and the Ida-Monona soils area in the west. As in the southern Iowa study, a constant product mix was assumed, and primary emphasis was given to selection of optimum machinery combinations. Two rotations were considered--a rotation based on current practices and a 5-year rotation of corn-corn-oats-meadow-meadow. Continuous corn was also considered in the budgeting analysis for comparison with the rotations in calculating total cost. No charge was made for the interest on land investment. Thus, the residual claimant was composed of land and operator management and risk-taking, as in the southern Iowa study.

For northeastern Iowa, the major reductions in average cost were attained at 280 crop acres with the continuous-corn program. The cost:revenue ratio was 0.42 at this size. The lowest cost:revenue ratio was attained at 320 acres under the 5-year rotation and at 400 acres under the current cropping program, with a cost:revenue ratio of 0.46 in each case.

A smaller machinery investment was required for the continuous-corn program than for the other two cropping programs. Average costs per dollar of output were slightly less for continuous corn, mainly because corn produces a greater gross income per acre than do oats, soybeans, or meadow.

Cost curves developed for western Iowa were considerably higher than those for the northeastern area (fig. 5). Most of the cost economies from acreage expansion were attained at 320 crop acres, as in the northeastern area, but average cost in this area was roughly 20 cents higher per dollar of gross income. This difference is partly due to lower yields and less intensive row cropping in the western area. However, if a land charge (interest on land investment) were included in the calculations of total cost, this difference would be partly or entirely eliminated because of differences in the price of land, and hence, in the interest charge on land investment.

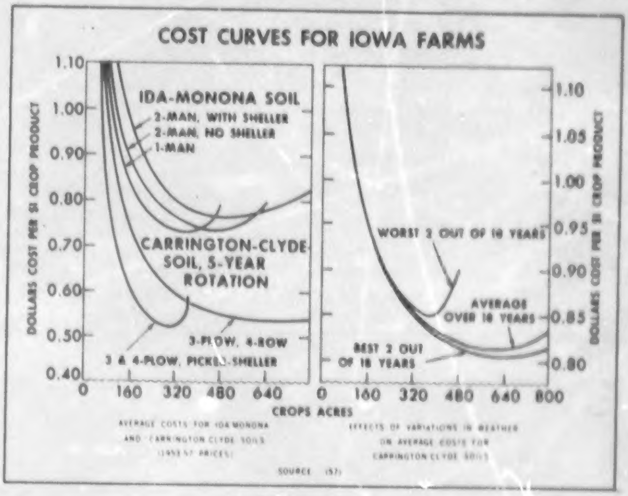


Figure 5

Another factor contributing to the differences in average cost was that losses from delays in hay harvesting were more severe in the western area. With more meadow (hay) in the rotations, expanding acreage led to untimeliness of operations, and consequently hay losses became more serious than in the northeastern area. Thus, the acreage attaining lowest average cost was smaller in the western area, particularly for the 2-man farms.

The effect of weather variations on the average cost curves was examined for the northeastern area. Under unfavorable weather conditions, average costs were generally higher, and the cost curves turned up at smaller sizes (fig. 5). These differences resulted from crop losses due to untimely operations.

One of the prominent conclusions of this study is that the longrun average cost curve is relatively flat over a wide range. For example, average cost was found to vary only 2 cents per dollar of gross sales on farms in the northeastern area with between 400 and 800 crop-acres. This small difference in average cost over such a wide acreage range would allow survival of farms of many sizes.

While this conclusion is probably correct in general, it must be pointed out that in the long run the profit margin (distance between the average cost curve and the price or average revenue line) must be large enough to prevent the residual claimant from being drawn into other uses. Presumably, the reservation price on management and uncertainty-bearing would increase as the size of farm increased from 400 to 800 acres, because of the more stringent demands on management and the greater uncertainty. In this case, we should expect fewer management and uncertainty-bearing resources (that is, fewer farm operators) to be drawn into 800-acre farms than into 400-acre farms when prices are low and profit margins thin.

However, with relatively high and stable prices, profits would tend to exceed the farmer's reservation price on management and uncertainty-bearing, and consequently a considerable increase in the number of larger farms would be expected. This seems to be precisely what happened during the late fifties. Assuming that roughly one-fourth of the cropland would be devoted to corn, farms with 800 acres of cropland would have about 200 acres of corn. Between 1954 and 1959, the number of Iowa farms that harvested in excess of 200 acres of corn more than tripled (130).

Irrigated Cotton Farms in Texas and California

Economies of size have been analyzed for irrigated cotton farms in Texas and California, using the synthetic-firm (economic-engineering) approach. A separate study was conducted in each area, but the methods used were essentially the same. Each study used a linear programming model to determine the least-cost enterprise combination and resource combination for each level of output. Output was measured in terms of gross income, because multiple-product firms were involved. The programming models used in these studies were variations of the basic cost-minimization model discussed on pages 29-33. Certain modifications of this basic model were made to provide for the peculiarities of the study areas involved.

Texas High Plains

In the Texas study (80), irrigated cotton farms ranging from 120 to more than 1,700 acres, using from 1 to 5 man-years of labor, were analyzed. Cotton acreage ranged from 40 to 570 acres. Basic data from a sample survey of farms in the *Texas High Plains* were used to determine certain resource requirements and practices. Prices were projected to 1968, and input-output coefficients were projected assuming use of advanced technology. Such technology included practices already used by the more progressive operators in the study area, or new practices whose workability and economic feasibility had been tested either by farmers or by agricultural experiment stations. It was assumed that eventually most farmers will adopt this advanced technology.

The programming model selected the enterprise combination--quantity of land, number of irrigation wells, and number of irrigations applied to each crop--required to produce each level of gross income at least cost. Then, using as its optimizing criterion the minimum cost per dollar of gross income, this analysis determined the optimum number of regular laborers and the number of tractors and complements of 4-row or 6-row equipment for each level of output. Land was considered to be available in discrete increments of 40 acres. Irrigation wells, regular laborers, tractors, and complements of equipment were also considered to be available only in discrete quantities.21/

The results of this study show cost data based on a variety of residual claimants. Data underlying the average cost curves reflect an assumption that operator management and risk-taking constitute the residual claimant. It was assumed, on the basis of survey data, that the operator would be required to devote an increasing amount of time to supervision and coordination as additional regular laborers were hired and as farm size increased. Thus, the amount of time the operator devoted to labor, and consequently the charge for operator labor, declined with larger farm size. In fact, the 5-man farm analyzed here was spread out over nearly 3 square miles, thus requiring the operator to devote full time to supervision and coordination. The labor cost for the 5-man farm thus included the wages of only the four regular laborers. The return to the fifth man was the profit, or return to operator management and risk-taking.

The findings show that the 1-man farm with adequate capital could be as efficient as any of the larger farms (table 3). In fact, a 440-acre farm with 102 acres of cotton, operated by one man with a set of 6-row machinery, could achieve an average cost of less than 71 cents per dollar of gross income (table 3). None of the larger farms could achieve lower average costs than the 1-man farm (fig. 6).

With the average cost curve remaining nearly constant at slightly above 70 cents per dollar of gross income over a wide range of sizes, total profit increased steadily with larger farm sizes. Thus, while the 1-man, 440-acre farm achieved the ultimate in efficiency and earned more than a $17,000 return to management, larger farms were more profitable. For example, on the 5-man farm, operator management and risk-taking earned more than $67,000 profit. Gross income on such a large farm would be nearly $235,000. More than $1 million of investment (average value) would be required, including some 1,720 acres of farmland with 15 irrigation wells.

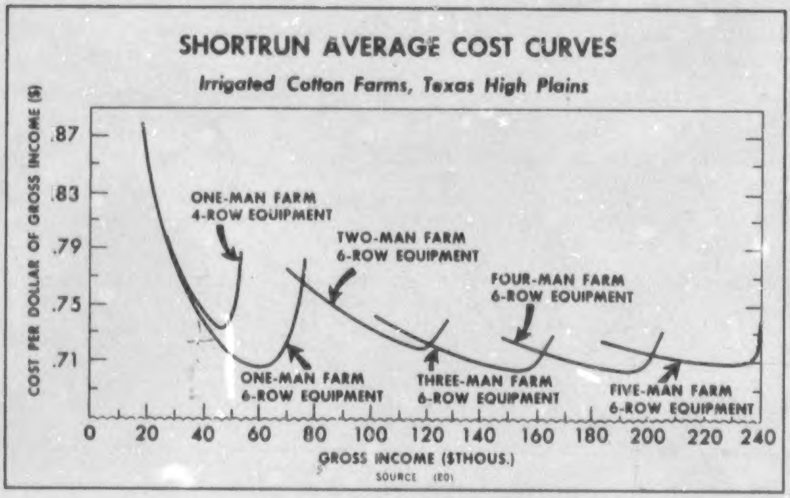
21/ These resources were integerized by a process of successive approximations using a regular linear programming code (LP/90), which did not contain a mixed integer programming feature at the time the computing was done.

Table 3.--Irrigated cotton farms, Texas High Plains: Range in output and acreage, with lowest average cost for each size

Range in acreage	Output range 1/	Size of farm and minimum points on average total cost curves for each size group					
		Regular laborers	Complements of equipment		Output 1/	Farmland	cost: revenue ratio 2/
			4-row	6-row			
Acres	1,000 dollars	Number	Number	Number	Dollars	Acres	
120 to 240	17 to 33	1	1	---	43,600	320	0.732
240 to 680	33 to 75	1	---	1	59,500	440	.708
560 to 920	75 to 119	2	---	2	118,800	920	.730
880 to 1,280	119 to 166	3	---	3	152,700	1,120	.709
1,200 to 1,520	166 to 200	4	---	4	197,400	1,480	.711
1,480 to 1,800	200 to 239	5	---	4	234,600	1,720	.712

1/ Output is measured as gross income.
2/ Lowest cost:revenue ratio for given levels of output, with land variable.

Source: (80).



SOURCE (20)

Figure 6

Despite this extremely high profit potential, the very large farms are not increasing in number as rapidly as are the intermediate sizes. During 1954-59, the number of farms in the Texas High Plains with more than 1,000 acres increased by only 5 percent, and the number of farms with less than 500 acres decreased. During the same period, there was an increase of 10 percent in the number of farms with 500 to 1,000 acres--1-man or 2-man farms.

Fresno County, Calif.

The area covered in Moore's analysis of Fresno County cotton farms (89) has two major soil types, one light and the other heavy, separated by the Fresno Slough. To the west of the slough lie the medium- to heavy-textured soils of the recent alluvial fans. Light, sandy soils characterize the area east of the slough. The resource requirements, yields, and practices were so different for farms in these two soil types that two separate cost analyses were conducted. Year-round labor supply was the primary measure of farm size in this study. The four sizes analyzed were 1-man, 2-man, 4-man, and 8-man farms. Amounts of farmland in the model farms extended beyond 2,000 acres. This study was completed in 1965, using prices projected to 1968 as in the preceding study.

For each farm size, both custom harvesting and the use of farmer-owned harvest machinery combinations were evaluated and were compared with regard to average total cost for producing specified gross incomes. Least-cost combinations of land, labor, and machinery were determined for each farm size for at least five levels of gross income. Heavy tillage equipment units were held constant for any given farm size. This procedure permitted the evaluation of each machine in terms of the cost per unit when used at different capacities, but more important, it took into account the returns from labor released by labor-saving equipment. In other words, the analysis evaluated each piece of equipment by noting its impact on the overall farming operation, not as an isolated item operating independently.

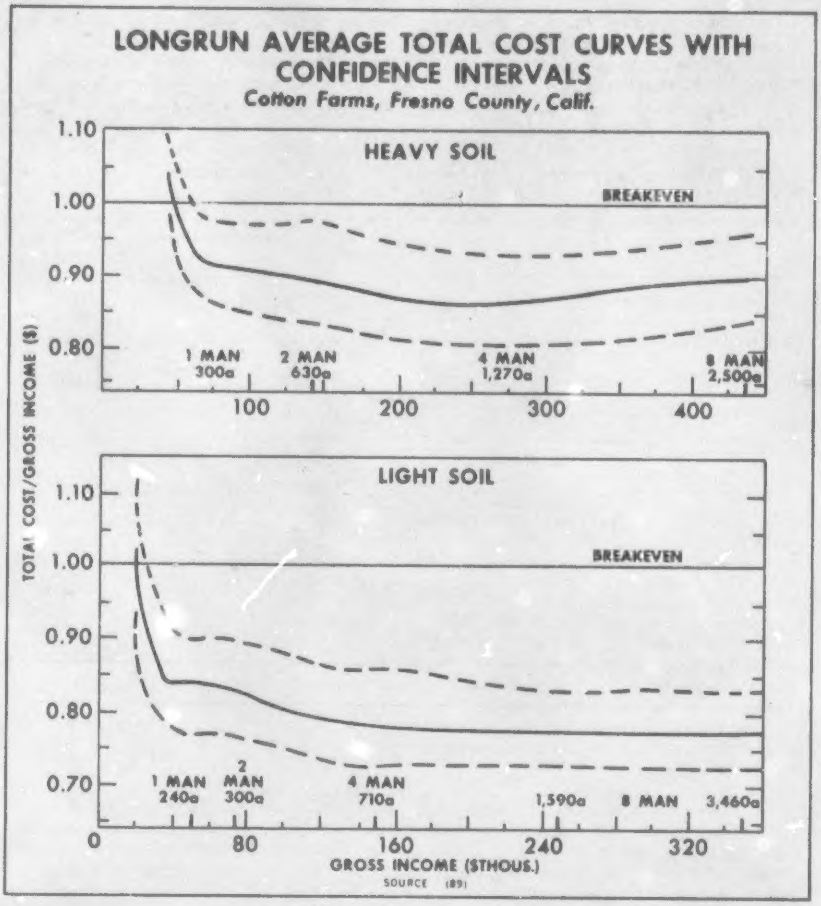
Figure 7 shows the envelope curves for the heavy soils and light soils areas, respectively. These curves are bordered by approximate confidence boundaries, indicating plus and minus one standard deviation of the cost:revenue ratio. The variance and standard deviation of the cost:revenue ratio were calculated under the assumption that the numerator, total cost, was a constant. As points on the upper confidence limit of the average cost curve were calculated, total cost was divided by the quantity, gross income minus one standard deviation of gross income. The lower bound was calculated by dividing total cost by the quantity, gross income plus one standard deviation of gross income.

Considerable reductions in average cost were achieved as farm size was extended up to four men, representing more than 1,400 acres in the heavy soils area, and 700 acres in the light soils area. Table 4 compares the efficiency of farms of similar size as shown in the Texas High Plains study and the Fresno County study, assuming operator management and risk-bearing are the residual claimant. Strictly speaking, the average costs derived in the two studies are not directly comparable because of the different assumptions regarding management requirements and other procedural matters. However, the overall effects of these differences are minor.

Table 4.--Comparison of acreage and average cost for optimal farm plans for irrigated cotton farms in Texas High Plains and in California

Study area	Acres		Cost:revenue ratio	
	1-man farm	4-man farm	1-man farm	4-man farm
Texas High Plains	440	1,480	0.71	0.71
Fresno County, Calif.:				
Heavy-soils area	270	1,134	.91	.85
Light-soils area	193	710	.83	.76

Source: (80, 89).



LONGRUN AVERAGE TOTAL COST CURVES WITH CONFIDENCE INTERVALS

Cotton Farms, Fresno County, Calif.

SOURCE (89)

Figure 7

Moore assumed that the opportunity cost for operator labor used in the direct operation of the farm was the wage rate for tractor drivers. The portion of the operator's time spent in supervision was charged at the higher rate paid to foremen. Table 5 indicates the annual fixed cost charged to each farm size. Supervision requirements and consequently supervisory costs were assumed to be constant at $720 per man for all four farm sizes.

Table 5.--Fresno County, California: Annual fixed labor costs by farm size, irrigated cotton farms

Item	1-man farm	2-man farm	4-man farm	8-man farm
	Dollars	Dollars	Dollars	Dollars
Direct labor	4,380	8,760	17,520	35,040
Supervision	720	1,440	2,880	5,760
Total	5,100	10,200	20,400	40,800

The operator's time devoted to supervision was not subtracted from the labor supply available for farmwork. For example, the 4-man farm was assumed to have 4 man-years of regular labor available for farmwork. The operator was assumed to devote roughly half his time to management duties, providing about one-half a man-year of regular farm labor. The other 3.5 man-years were assumed to be provided by regular hired labor. The other farm sizes involved a comparable mixture of hired and operator labor, with hired labor replacing the portion of the operator's time devoted to management duties. Thus, regular hired labor was not assumed to be available in 1-man increments on a full-time basis, as it was in the Texas study. This difference alters the interpretation of results slightly, in that the analysis was predicated on the assumption that part-time hired laborers were as productive and required as little supervision per man-year as the full-time regular employees.

The proportion of cropland having a cotton allotment was found to decline with larger farm size. This is a result of institutional factors and historical landownership patterns. Moore allowed for this varying proportion of cotton allotment land in his investment requirements and in calculating the land price and the annual interest charge on land.

Another minor procedural difference between the Texas and California studies is that the residual claimant was smaller in the latter study: Only coordination and risk-bearing were included. Supervision was included with operator labor, hired labor, capital, and all the other resources in calculating total cost and the cost:revenue ratios underlying the cost curves. In the Texas study, supervision was included in the residual claimant. Since total costs and consequently the cost:revenue ratio are larger when more elements are excluded from the residual claimant, this procedural difference has the effect of slightly raising Moore's average cost curves--by about 1 or 2 cents per dollar of gross income for all farm sizes. The cost data from the California study can be converted to the same basis as the Texas data, using operator management and risk-bearing as the residual claimant, by subtracting the supervision charge (table 5) from the total cost. This was done in calculating the cost:revenue ratios for table 4.

California Cash Crop Farms

Yolo County Cash Crop Farms

In 1960, Dean and Carter (30) analyzed the economies of size for cash crop farms in Yolo County, Calif., near Woodland. They employed a linear programming model similar to that used in the Texas study described above. The main crops grown in the study area were sugarbeets, tomatoes, milo, barley, alfalfa, and safflower. The linear programming model selected the optimum (least cost per dollar of gross income) combination of enterprise levels for each level of output.

A wide range of farm sizes was considered. Because of institutional and rotational considerations, the sugarbeet acreage allotment did not increase proportionately with size. The envelope curve (fig. 8) was therefore "u"-shaped, declining sharply to about $0.70 at $100,000 output, falling to a minimum of $0.65 at $240,000 output, and then increasing gradually to about $0.72 at an output of $440,000. Thus, farms with output beyond $240,000 (roughly 1,400 acres) began to experience rising average costs. The authors emphasize the fact that the "u" shape of their envelope curve might be directly attributed to resource and institutional restrictions which change with size, forcing changes in input combinations and output mix. Nonetheless,

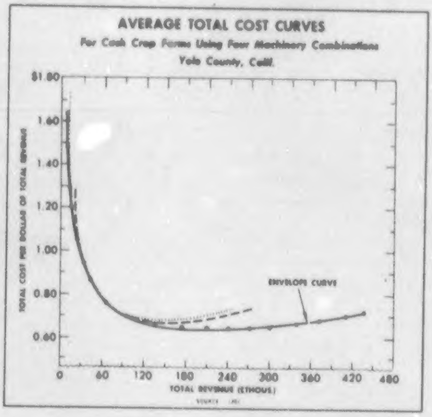


Figure 8

the planning curve did correspond to a realistic path of expansion for farms in the study area, and the analysis revealed definite economic reasons for the trend toward consolidation and expansion of smaller units in Yolo County.

On the other hand, the analysis did not indicate a strong economic incentive for expansion to extremely large size; farms of about 600 to 800 acres appeared able to compete on a unit-cost basis with much larger farms. And with unit costs approximately constant over a wide range, this 1960 study suggested that a continuation of a wide variation in farm sizes could be expected, with little tendency for a concentration at one optimum size. Dean and Carter suggest that this relationship may help to explain the relatively small number of farms actually operating in the extremely high output ranges.

Another important factor in the determination of farm size was the risk and uncertainty inherent in farming. Expansion in size ordinarily requires borrowed capital; as more borrowed capital is employed the risk of losing equity accumulated over time increases. Thus, farmers who have achieved an efficient size of unit and satisfactory incomes tend to "play it safe" in order to protect their current position. High income taxes for large farmers may also reduce the incentive to expand farm size.

This analysis assumed no pecuniary economies in purchasing inputs (discounts on large purchases) or in marketing products in large quantities. Neither were diseconomies due to inefficient labor use, coordination problems, or "red tape" considered. Therefore, the shapes of the cost functions presented arise entirely from other sources of economies and diseconomies.

Imperial Valley Field Crop Farms and Vegetable Crop Farms

In 1962, Carter and Dean (20) examined the economies of size for field crop farms and vegetable crop farms in the Imperial Valley of California. They used synthetic-firm budgeting procedures, assuming a fixed combination of crop enterprises for all farm sizes.

Five size classes of farms were examined in the budgeting analysis, the largest including farms of more than 2,400 acres. Custom hiring and contracting were considered as alternatives to the owning and operating of machines. The machinery combination developed for each size class represented a reasonably efficient setup, with some excess capacity to take care of unusual situations.

Field crop farms and vegetable farms were considered in separate analyses. Shortrun average cost curves developed for the five size classes are shown in figure 9. Because a fixed product mix was assumed, the output and average cost data may be expressed in terms of either acreage or gross income. The curve for the smallest size class, farms with less than 320 acres, is horizontal because all the operations were conducted on a variable cost basis, using custom hiring or contract operations rather than farm-owned equipment. Shortrun average cost curves for larger size classes exhibit the usual downward-sloping shape, a result of fuller utilization of farm-owned machines.

The envelope curve for field crop farms declines steadily to about 1,500 to 2,000 acres (total revenue of $300,000 to $400,000) and declines only slightly thereafter.

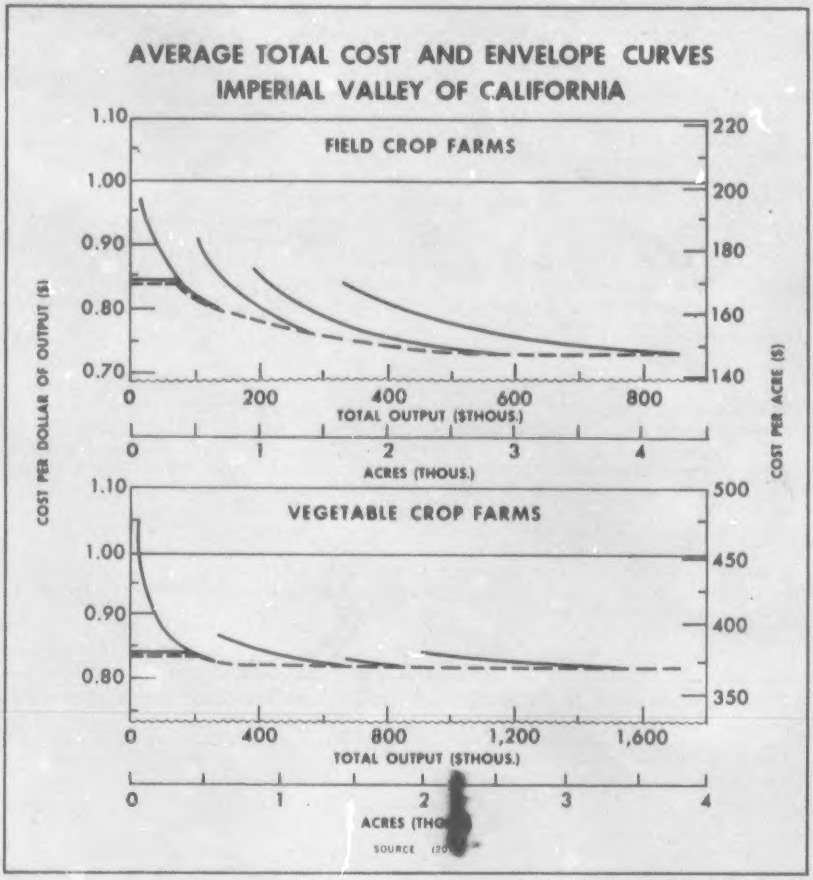

AVERAGE TOTAL COST AND ENVELOPE CURVES
IMPERIAL VALLEY OF CALIFORNIA
FIELD CROP FARMS
COST PER DOLLAR OF OUTPUT ($)
1.10
1.00
0.90
0.80
0.70
COST PER ACRE ($)
220
200
180
160
140
0
200
400
600
800
TOTAL OUTPUT ($THOUS.)
0
1
2
3
4
ACRES (THOUS.)
VEGETABLE CROP FARMS
1.10
1.00
0.90
0.80
500
450
400
350
0
400
800
1,200
1,600
TOTAL OUTPUT ($THOUS.)
0
1
2
3
4
ACRES (THO
SOURCE (20

Figure 9

For each size group, minimum cost per dollar of total revenue (or per acre) was achieved with fixed resources (machinery and managerial labor) used to maximum capacity.

These cost curves emphasize three points: (1) Significant cost advantages accrue to increased size of field crop farm operations up to a size of about 1,500 to 2,000 acres; thereafter, the costs per unit of production decline only slightly and eventually level out; (2) if farms that are highly mechanized and otherwise set up to operate large acreages underutilize this capacity, they may have higher unit costs than smaller operations more fully utilizing their fixed resources; and (3) farms of any size could operate efficiently and make reasonable profits under the conditions prevailing in 1959. On the basis of cost per dollar of output, the envelope curve declines from about 84 cents at low output levels to about 73 cents for output in excess of $500,000. Thus, the net return to operator labor and management before income tax varies from 16 cents to 27 cents per dollar of output over the corresponding range in output.

Similar procedures were used in analyzing vegetable crop farms. The results show that if competent and timely contract services are available for the smaller vegetable farms (up to 640 acres, producing around $100,000 of total crop revenue annually), the longrun average costs for vegetable production are essentially constant throughout the size range, from very small farms to those with more than 2,400 acres of farmland (fig. 9). Results of the study indicate that when competent and timely contract services are available at current rates, the Imperial Valley vegetable farmer achieves little or no cost advantage by owning equipment. In fact, the very large vegetable farms that are equipped to operate on a large scale, but use their machinery at less than full capacity, actually have higher average cost than farms that use only contract services for all the farm operations. In a situation where contract work is not readily available, considerable cost economies occur with increasing size up to about 640 acres.

The apparent lack of any economies of size on vegetable crop farms relates in part to the high proportion of variable costs, especially for contract harvesting, incurred in vegetable crop production. Lettuce and cabbage, which together comprise 50 percent of the cropping system analyzed, account for about 75 percent of the total variable costs associated with harvesting. Harvesting lettuce and cabbage is a highly labor-intensive operation with relatively minor machine costs, under present technologies. Thus, only slight economies of size are attainable on these operations.

Kern County Cash Crop Farms

In 1963, Faris and Armstrong (36) analyzed the economies of size for cash crop farms in Kern County, Calif. They used a combination of linear programming and budgeting to determine the least-cost machinery combination and irrigation system for each farm size. The model and assumptions employed in this study are very similar to those employed in Moore's study of irrigated cotton farms in Fresno County, Calif. (89).

Three different cropping programs were considered. The cotton-alfalfa-barley-milo farms achieved slightly lower average total cost per dollar of revenue than either the cotton-alfalfa-potato farms or the cotton-alfalfa farms. Results were similar for each of these three cropping programs (table 6). Lowest average total was achieved by the 640-acre farm, with about 90 cents total cost per dollar of gross income. The 160-acre and 320-acre farms were shown to be almost as efficient, each achieving a cost per dollar of revenue within 5 cents of the minimum in each cropping program. The 1,280-acre and 3,200-acre farms were slightly less efficient than the 640-acre farms, having costs 2 to 4 cents higher than the minimum in each case.

Table 6.--Cash crop farms, Kern County, California: Total cost per dollar of crop revenue for three cropping programs

Farm size (acres)	Cost:revenue ratio for--		
	Cotton-alfalfa farms	Cotton-alfalfa-potato farms	Cotton-alfalfa-barley-milo farms
80	1.06	1.06	1.00
160	.96	.94	.93
320	.92	.91	.91
640	.91	.89	.89
1,280	.94	.93	.91
3,200	.96	.93	.92

Source: Calculated from data in Faris and Armstrong (36, table 26).

Wheat Farms in the Columbia Basin of Oregon

In a study conducted by Stippler and Castle in 1961 (123), dryland wheat-summer fallow farms in the Columbia Basin of Oregon were examined using the synthetic-firm budgeting technique. Four farm sizes representing specific labor-machinery combinations were analyzed. Three levels of machine utilization were considered in each of the four labor-machinery size groups. In each case, the lowest average cost was obtained when the machines were fully utilized; that is, were being used on as many acres as possible on a 10-hour-day basis.

Table 7 shows the average cost attained by each of these full-utilization farm plans. The 1-man wheat farms achieved lower average costs than either the 2-man or 3-man farms. The 1-man farm with a 50- to 60-horsepower tractor had a cost: revenue ratio of 0.86, and earned a $5,629 return to operator labor, management, and risk-taking. The 2-man and 3-man farm sizes had costs in excess of 90 cents per dollar of gross income, and earned less than $5,500 of net operator earnings.

This study used highly simplified procedures and assumptions. Only a narrow range of production and resource acquisition alternatives were considered. However, it appears that the size-efficiency relationships developed are a generally accurate representation of the economies of size for wheat-summer fallow farms in the Columbia Basin.

Table 7.--Columbia Basin wheat farms: Average cost and operator earnings for selected farm plans using the moldboard fallow operation

Farm size	Basic resources		Full-utilization farm plan			
	Men	Tractors	Acres	Gross farm income	Operator income	Cost:revenue ratio
Small----------	1	One 30 to 40 HP	1,000	$24,572	$3,669	0.85
Medium---------	1	One 50 to 60 HP	1,600	39,317	5,629	.86
Medium-large---	2	Two 50 to 60 HP	2,500	61,420	5,429	.91
Large----------	3	Two 50 to 60 HP, one 25 to 35 HP	3,600	88,462	5,252	.94

Source: (123, table 5).

Results of the Crop Production Studies

The size-efficiency relationships vary widely among the 14 crop-farming situations discussed here. Although much of this variation results from differences in the assumptions and procedures used, some useful comparisons and generalizations can be made.

In the production of cling peaches in California, average cost reached a minimum with an orchard size of 90 to 110 acres when mechanized practices were used. This size of operation required one full-time man plus seasonal hired labor.

The two studies of crop farms and crop-livestock farms in Iowa showed that when full ownership of all machinery was assumed, 2-man farms were more efficient than 1-man operations. When custom hiring of certain field operations was introduced into the analysis, the cost curves for the smaller farms were lowered by about 25 percent, making the 1-man farm nearly as efficient as the 2-man farm. However, these cost reductions were attained only when the custom services were available when needed, so that crop losses were avoided. These two studies examined only a limited range of sizes: 1-man and 2-man operations. Consequently, they provided no insights into the comparative efficiency of larger farm sizes operated by three or more full-time men.

Similar results were found in the analysis of field-crop farms and vegetable farms in the Imperial Valley of California. Farm sizes extending beyond 2,400 acres were examined. Vegetable farms of less than 640 acres could produce almost as efficiently as any larger size by hiring custom work for all or most of their field operations. Among the smaller field-crop farms, custom hiring was also found to greatly reduce the average costs, but additional economies of size were found to occur up to about 1,500 to 2,000 acres.

Analysis of cash-crop farms in Yolo County, Calif., producing sugarbeets, tomatoes, milo, barley, alfalfa, and safflower showed that all the economies of size were attained at a farm size of about 600 to 800 acres. Because of institutional and crop rotation considerations, farms beyond 1,400 acres were found to experience rising average costs.

Farms producing cotton, alfalfa, milo, and barley in Kern County, Calif., were found to achieve lowest average cost at about 640 acres. Larger farms extending beyond 3,000 acres were slightly less efficient.

In the analysis of irrigated cotton farms in Fresno County, Calif., 1-man, 2-man, and 8-man operations were found to be less efficient than 4-man farms representing about 700 acres in the heavy-soils area and 1,400 acres in the light-soils area.

In two studies, larger farms were found to be no more efficient than highly mechanized 1-man farms. These 1-man farms were a 440-acre irrigated cotton farm in Texas and a 1,600-acre wheat-summer fallow farm in Oregon.

In most of these studies, all of the economies of size could be attained by modern and fully mechanized 1-man or 2-man farms. But it is often possible to increase total profit by extending beyond the most efficient size. In these cases, the incentive for expansion to very large farm sizes is higher total profit, rather than lower average cost.

Partially counteracting the profit incentive to farm enlargement is the increasing uncertainty and difficulty of managing a larger and more complex farm. As farm size increases, complexity and management problems become particularly serious in types of farming and areas where (1) distances between workers are great, (2) land quality is uneven, (3) growing conditions and prices are unpredictable and require frequent revisions in management plans.

Beef Feedlots

Beef enterprises occur on a wide variety of types and sizes of farms. On crop-livestock farms, the beef herds range in size and relative importance from small supplementary enterprises using idle off-season labor and unsalable crop residues to large enterprises in which the beef herds provide the main source of revenue and in which crops are produced mainly as a source of feed. At the extreme end of the continuum are the highly specialized drylot beef feeding businesses that utilize very little land area and buy all their feed inputs. These specialized feeding businesses account for a large and rising proportion of the Nation's beef production. Four reports of empirical studies of specialized beef feedlots are discussed in this section.

Model Feedlots of 500-, 2,000-, and 5,000-Head Capacity in Eastern Oregon

Three levels of feedlot capacity were examined in a 1964 study by Richards and Korzan (101). This was intended primarily as a feasibility study, rather than as an analysis of economies of size. However, because of the procedures used and the feedlot sizes considered, the findings shed some light on the size-efficiency possibilities available to farmers considering initiation of a beef feeding operation.

Lots capable of holding 500, 2,000, or 5,000 head of feeder steers were included in the study. The results show that even though a 2,000-head feedlot operation is not as efficient as larger sizes, a considerable amount of net profit can usually be expected under price conditions such as those existing in eastern Oregon from 1956 to 1963.

The authors assumed an initial weight of 650 pounds and a finishing weight of 1,062.5 pounds (before shrinkage). A 150-day feeding period and a 2.75-pound average gain per day were assumed. Synthetic-firm budgeting procedures were employed, and operator management and risk-taking were used as the residual claimant. Nonfeed cost per pound of gain was the measure of average total cost. The 500-head feedlot had an average nonfeed cost of \$5.38 per hundredweight of gain, compared with \$4.13 and \$3.32 for the 2,000- and 5,000-head operations, respectively.

Potential profits for the 2,000-head feedlot were calculated for each year from 1956 to 1963 on the basis of average prices received each year for slaughter steers. Returns to management and risk-taking ranged from a \$50,000 loss (in 1963) to a \$115,000 net return (in 1958). In 6 of the 8 years, profits were above \$36,000.

The average annual return to management and risk-taking during the 8-year period was about $43,000.

Actual and Synthetic Feedlots in California

Hopkin analyzed the economies of size in California beef feedlots in 1958, calculating average cost curves both from actual firm records and from synthetic-firm budgets (54). Basic data were obtained from a random sample of 77 feedlots widely distributed around the State. The sample data were separated into six size classes, according to feedlot capacity.

In the actual-firm analysis, a quadratic least-squares regression curve was fitted to the observations for all the firms in each size class. This equation expressed nonfeed cost per head per day as a function of the feeding ratio.

For the synthetic-firm analysis, a model feedlot was designed to represent each size class. The average characteristics of all the observed firms in each size class were used as if they were the actual record of a single firm with capacity set at the group average. The feeding ratio was then allowed to vary from one budget to another, from one-third to full utilization of the facilities. One point on the synthetic firm's shortrun cost curve was derived from each budget. A curve was then drawn approximately through the plotted points. A 120-day feeding period was assumed, and each lot was assumed to operate continuously and at the same capacity throughout the year.

The shortrun average cost curves obtained from actual firm records and from synthetic-firm budgets are quite similar, indicating that with a given size of plant the average nonfeed cost declines sharply as the feeding ratio, or degree of plant utilization, is increased. Both the synthetic-firm analysis and the actual-firm analysis provide evidence of a downward-sloping longrun average cost curve.

Average cost was measured as nonfeed cost per head per day, less a credit of 0.88 cents for manure. For the smallest class of feedlots, those with less than 1,200-head capacity, average cost was 11.77 cents nonfeed cost per head per day. These small feedlots fed an average of less than 800 head per year. Average cost was found to decline steadily as feedlot size increased. The largest size class included feedlots with more than 14,000 head capacity, feeding an average of more than 35,000 head per year. These large feeding operations achieved an average cost of only 7.69 cents, roughly one-third less than the average cost of the smallest class.

The synthetic-budgeting results showed approximately the same size-efficiency relationship as the actual-firm analysis because average or typical plant characteristics were budgeted. If the budgets had been based on advanced technologies and above-average practices, the two relationships would probably have been quite different.

Model Feedlots With More Than 3,000-Head Capacity, Imperial Valley, Calif.

Cost analyses can be conducted using various degrees of abstraction of actual-firm characteristics. At one extreme are studies such as the preceding one by Hopkin in which firms are synthesized to reflect every detail of the average or typical plants found in various size classes. This procedure produces size-efficiency relationships that are geared to presently existing practices and facilities, many of which were initiated long ago and have become outdated. At the other extreme are studies using the economic-engineering approach (73). In this approach, various firm sizes are budgeted with no regard for average or typical situations, except to assure that the arrangements are feasible and realistic. This method produces results that are relevant to the firm in its planning stage, when the entrepreneur seeks the specifications of various plant sizes, and is interested in a comparison of the efficiency and profit attainable with each size. Presumably the planning entrepreneur is concerned with the most efficient and profitable plant designs in each size class, rather than typical or average situations based partly on outdated technology. King's 1962 study of feedlots in the Imperial Valley, Calif., is an excellent example of the economic-engineering (synthetic-firm) type of budgeting analysis (73).

Average nonfeed cost was found to decline from 7.19 to 5.57 cents per head per day as the number of cattle on feed at one time increased from about 11,000 to 68,000 head (fig. 10). During a 120-day feeding period, this cost reduction would result in a savings of nearly $2 for each steer fed. These average cost figures are based on full utilization of the feeding facilities, with all the pens filled to capacity during three 120-day feeding periods each year. Alternatively, if these model feedlots are operated throughout the year with pens partly empty, average costs rise sharply. For example, if the largest of the model feedlots is operated all year with the pens only 60 percent full, average nonfeed cost rises from 5.57 to 6.79 cents per head per day (table 8). This amounts to a difference of nearly $1.50 per head for a 120-day feeding period.

King also examined another kind of plant underutilization, in which the pens are kept full only part of the year and the operation is closed down during the remainder of the year. This kind of underutilization also increases average cost per unit. For example, consider a feedlot designed for 6,000-head capacity. If this plant were fully utilized throughout the year using a 120-day feeding period, approximately three batches of feeder cattle could be fed and the average nonfeed cost per head per day would be 6.8 cents. But if the operation were closed down after the first batch, average cost would nearly double, rising to 12.6 cents. Thus, the benefits of large scale operation may be offset if the facilities are operated at less than full capacity.

Each of the five model feeding operations was organized to provide full utilization of a specific size of mill; the five mill sizes had rated capacities of 5, 10, 15, 20, and 30 tons per hour. Five model feedlots with designed capacities of 3,760, 7,520, 11,278, 15,038, and 22,556 head, respectively, were synthesized on the basis of data from a sample of feedlots and from other sources. Mill construction costs and specifications were obtained from a feed mill construction firm. Cost rates for electricity, labor, and other inputs were set at locally prevailing rates and checked for consistency against the feedlot sample data. A sample of 12 large feedlots in the Imperial Valley of California provided information regarding requirements for equipment, labor, veterinarian's services, medicine, and various other input data.

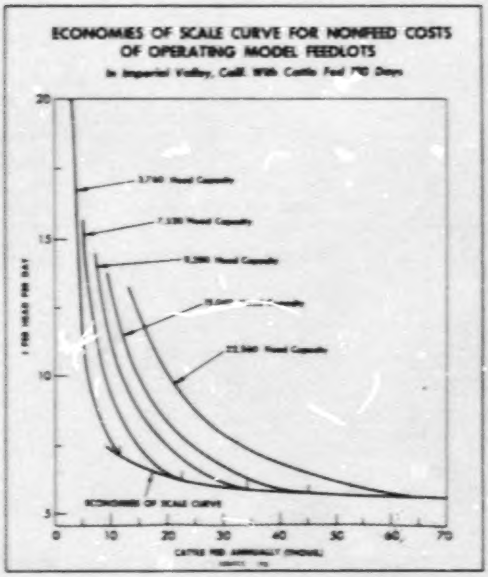


Figure 10

The costs of fixed items such as taxes, insurance, depreciation, interest, management, and office expenses were tabulated separately as a series of lump sums. Cost items that varied with the number of head fed or the tonnage of feed fed were treated as variable costs. These included electricity, equipment repairs, gas and oil, telephone, death loss, veterinarian's services, medicine, and labor other than management and office staff. Total annual cost of each variable resource was calculated as a linear function of either the number of animal days (number of days of operation per year times average number of head on feed at a given time), or the total tonnage of feed fed. Since the amount of feed fed per head per day was assumed to be constant in this analysis, it was possible to convert these linear cost functions from one form to the other. In this way, average cost could be presented as a function of either animal days or tonnage of feed fed.

The costs derived in this study are lower than those derived in the Hopkin study by about 1.5 cents per head per day. The model feedlots were assumed to operate at 80 percent of maximum capacity for this comparison. This cost difference results primarily from the fact that King's budgets reflect better-than-average or advanced technology and practices, while Hopkin's budgets are based on average or typical situations.

Table 8.--Nonfeed cost per head per day for model feedlots operating at full capacity and at 60 percent of capacity in the Imperial Valley of California

Feedlot capacity, head on feed at one time	Feed-mill capacity per hour	When operated at various percentages of maximum annual outputs			
		Cattle fed per year 1/		Average cost 2/	
		100 percent	60 percent	100 percent	60 percent
	Tons	Number	Number	Dollars	Dollars
3,760	5	11,280	6,768	7.19	9.33
7,520	10	22,560	13,536	6.18	7.75
11,280	15	33,840	20,304	5.92	7.35
15,040	20	45,120	27,072	5.75	7.08
22,560	30	67,680	40,608	5.57	6.79

1/ Assuming a 120-day feeding period and 3 lots per year.
2/ Cents per head per day.

Source: (73, tables 9 and 10). *

Model Feedlots in Colorado

A study of feedlots in Colorado completed by Hunter and this writer in 1965 employed essentially the same analytical techniques as King's study, with some modifications and extensions. Feedlot capacities ranging from 135 to 15,300 head were examined (65).

When all resources including the operator's labor were charged at going market rates, the model feedlots effected important savings by owning a feed mill of a size appropriate to the scale of the operation. For example, for a feedlot with a 3,150-head capacity feeding operation, a 15-ton-per-day feed mill provided lower average cost than equipment combinations having no feed mill or than any of the larger sizes of mill considered (65, fig. 6). Even with a very small feedlot designed with only 135-head capacity, an 8-ton mill provided lower average nonfeed cost than any of the nonmill equipment combinations considered. As more feeding space was added and more cattle were fed with this 8-ton mill, average cost dropped sharply, reaching a minimum at 1,500-head capacity. Beyond 1,700-head capacity, feeding operations that used this small feed mill had higher average nonfeed cost than operations using the larger mills (fig. 11).

The size of feed mill that provided the lowest possible average cost per head fed per day and per hundredweight of gain is shown for various feedlot sizes in table 9. It was assumed that each steer gained an average of 2.57 pounds per day during a 169-day feeding period, and that the feedlots were kept essentially full throughout the year. These cost data indicate the average cost of owning and operating various sizes of feeding operations, excluding the cost of feed and feeders, which are assumed to be constant and, therefore, not to affect economies of size.

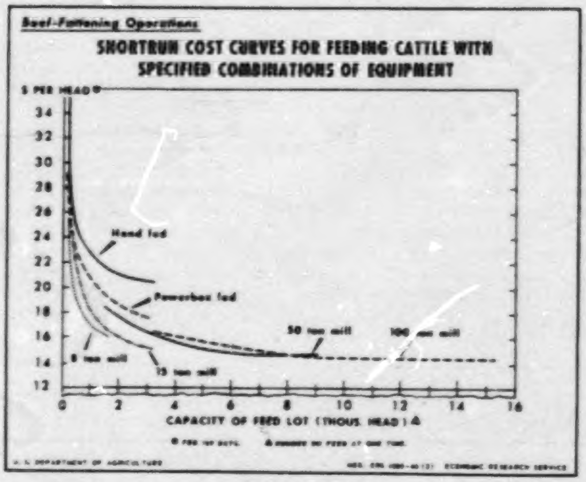


Figure 11

Table 9.--Economies of size in feeding yearling steers in Colorado

Size of feedlot (head on feed at one time)	Size of least-cost feed mill per 8-hour day 1/	Least-cost point			
		Feedlot size	Average total cost		
			Per head fed		Per pound of gain
			169 days	Per day	
	Tons	Head	Dollars	Cents	Cents
135 to 1,700------	8	1,500	16.37	9.7	3.8
1,700 to 4,000----	15	3,500	15.15	9.0	3.5
4,000 to 9,000----	50	8,100	14.66	8.7	3.4
9,000 to 15,300---	100	15,300	14.10	8.3	3.2

1/ Each of the least-cost equipment combinations includes powerboxes rather than hand-scoop shovels for distributing the feed into the feed bunks.

Source: (65).

The small model feedlots with a capacity for 135 to 1,700 head on feed at one time operated most efficiently using an 8-ton feed mill and powerboxes to distribute the feed into the bunks. Feedlots in this size range were designed to be operated by one or two men. The average cost for a 1,500-head feeding operation was 3.8 cents per pound of beef gain. For larger feedlots having between 1,700 and 4,000 head on feed at a time, the 15-ton feed mill was most efficient; in the 4,000- to 9,000-head size range, the 50-ton mill was most efficient. Beyond 9,000-head capacity, the 100-ton mill was most efficient, providing an average cost of only 3.2 cents per pound of gain for a feedlot with 15,300 yearling steers on feed at a time. This was only slightly more efficient than the 1,500-head operation using an 8-ton mill--a difference of only 0.6 cent per pound of gain. These findings indicate that the technical economies of size attained by feedlots feeding over 1,500 head are too small to have any appreciable effect on the average cost of producing beef or, consequently, on the wholesale and retail prices of beef. A slight variation in the purchase price of feed or of feeder cattle, or in the sale price of fat cattle, could exert a considerably stronger effect on average cost and the profit margin.

However, the slight gain in efficiency attributable to economies of size is quite significant in terms of the overall cost and profit of a large feeding operation. For example, because of this 0.6 cent difference in average cost, a feeding operation handling 15,000 head of steers at a time would have considerably lower total costs--a savings of more than $70,000 annually--using a single feedlot with a 100-ton feed mill instead of ten 1,500-head feedlots each using an 8-ton mill.

When prices are favorable, large feeding operations realize very high profits. But when prices are unfavorable, they incur sizable losses.

The model feedlots were also analyzed for operation at less than full capacity. The results indicate clearly that the advantages of large-scale operations are attained only when the facilities are fully utilized. Excess capacity in the mill or feedlot facilities greatly increased average total cost.

The basic data were obtained chiefly from a sample survey of feedlots and from feed mill construction firms. Four mill sizes were considered, with rated capacities of 8, 15, 50, and 100 tons of feed per 8-hour day, according to manufacturer's specifications. For each mill size, various levels of feeding space and the associated facilities were examined, ranging from a relatively small feeding capacity to sizes that required using the mill beyond its rated capacity. In cases involving overutilization, additional use-depreciation and overtime pay were assumed to occur.

Some of the smaller feedlots were designed without feed mills, and it was assumed that commercial feed mills would process and mix all the grain and concentrates fed to the cattle. These small feedlots were designed with two alternative equipment systems. Both systems used tractor loaders and grain augers for loading the feed trucks. But one system used hand-scoop shovels for unloading the feed trucks into the feed bunks, and the other used powerboxes (self-mixing, self-unloading feed units mounted on trucks). Four other equipment combinations were designed, each having a specific size of operator-owned feed mill to process, mix, and load the grains and supplements into the feed trucks. All four of these mill combinations used trucks with powerboxes to distribute the feed into the feed bunks. Feedlot areas with capacities ranging from 135 to 15,300 head of yearling steers were analyzed in conjunction with the six specific equipment combinations. Several realistic combinations of feedlot area and complements of equipment were analyzed.

Throughout the entire range of feedlot sizes analyzed here, least-cost operation was achieved by the operator owning an appropriate size of feed mill, rather than hiring the concentrate mixing done by a commercial mill, and using powerboxes rather than hand scoops to distribute the feed into the feed bunks.

In the basic analysis, the feeding area was assumed to be fully utilized throughout the year. The feed mill was allowed to operate at less than full capacity in cases where the assumed pen capacity was less than mill capacity. Herein lies one of the basic differences between this study and King's study. King viewed the fixed plant as being both the mill and the feeding facilities, whereas we assumed a slightly longer planning horizon, considering only the mill as fixed and allowing the quantity of feedlot area and feeding facilities to vary. In both studies, points on the shortrun cost curves represent various degrees of utilization of the fixed plant. In each study, a smaller number of cattle fed per year implies a lesser degree of utilization. However, as King reduced the number of cattle fed, he held pen capacity constant, at the level corresponding to the largest potential feeding capacity of the mill. This amounted to varying the feeding ratio--the number of head fed per year for each 1-head unit of feeding space, assuming a given length of feeding period. In our Colorado study, as the number of cattle fed was reduced, the feeding area was reduced accordingly, with mill size held fixed. Thus, the feeding ratio was held constant.

This divergence in procedures and assumptions alters the shape of the shortrun average cost curves. King's curves are steeper than ours, because his concept of underutilization allowed excess capacity in both the mill and the feeding facilities; in our procedure only the mill was allowed to operate at less than full capacity. Both procedures are correct for their respective planning horizons. In the longrun setting, where all resources are allowed to vary, both procedures give identical results. An envelope curve drawn tangent to the shortrun average cost curves will have the same shape and height, regardless of the planning horizon selected for examination of shortrun situations.

Results of the Four Feedlot Studies

One general conclusion can be drawn from these studies. For feedlots above a moderate size, say 1,500- to 5,000-head capacity, the technical economies of size attainable are relatively unimportant--only $1 to $2 per head fed. These relatively small savings can be easily surpassed by a small difference in the price of feed or feeder cattle. A feedlot operator whose operation is small enough to allow him to "shop around" and save a dollar a ton on his hay price, for example, or 50 cents a hundredweight on his feeder cattle, can often realize much greater savings in this way than are attainable through the technical economies of size. Thus, the possible pecuniary (buying and selling) economies and diseconomies of size may be very important in explaining changes in the beef feeding industry.

Dairy Farms

The emergence of new forage production technologies, milking parlor systems, and housing arrangements in recent years has opened up new possibilities of economies of size in dairying. Availability of these new and efficient techniques and the increase in wage rates have augmented the interest of dairy farmers and others in the question of economies of size. Changes in the size distribution of dairy farms have led to concern over concentration of production and its effect on the survival of small dairy farms. For the country as a whole, the number of dairy farms having fewer than 20 milk cows decreased sharply during the 1950's. Meanwhile, the number of dairy farms with 30 to 99 milk cows increased by more than 90 percent, and the number with 100 milk cows or more increased by 82 percent (table 10). Thus, the strongest percentage increases occurred among the herds of medium size--30 to 99 head--while the very large dairy herds remained few in number.

These facts raise a question concerning the economies of size in dairying. Four economies of size studies for dairy farming are summarized and interpreted here.

Table 10.--Changes in sizes of dairy farms, United States, 1950-59

Number of milk cows	Farms having specified number of milk cows		
	1950	1959	Percentage change
	Number	Number	Percent
1 to 19	3,465,526	1,571,496	-54.7
20 to 29	119,259	140,714	+18.1
30 to 49	46,799	89,315	+90.8
50 to 74	10,209	22,336	+118.8
75 to 99	2,871	5,604	+95.2
100 or more	3,593	6,551	+82.3
Total	3,648,257	1,836,121	-49.7
500 to 999	N.A.	177	N.A.
1,000 or more	N.A.	34	N.A.

Source: (130, table 26).

New England Dairies

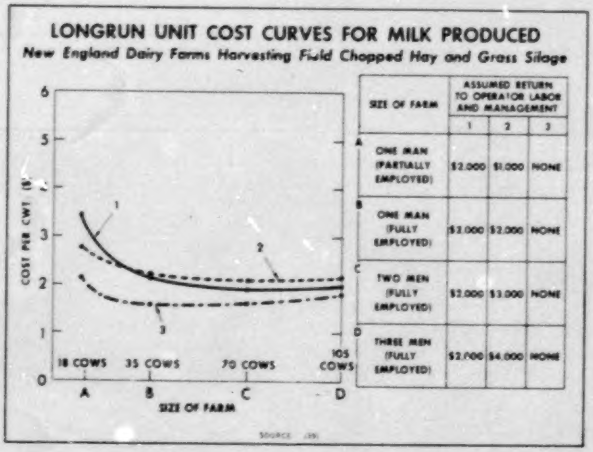
A study conducted by Fellows, Frick, and Weeks in 1952 was designed partly as a means of testing the synthetic-firm budgeting technique in examining economies of size (39).

Model New England dairy farms with 35 or more milk cows were found to have significantly lower average total cost per unit of output than the smaller dairy farms, under the prices and technologies applicable in 1952. The average cost curve was approximately flat from the 1-man, 35-cow farm to the 3-man, 105-cow farm. These results are consistent with the broad changes in the size distribution of New England dairy farms during the 1950's. The number of farms in that area having less than 20 milk cows decreased steadily during the decade. Number of farms with 20 to 29 cows declined only slightly. Farms with 30 to 49 cows increased by nearly 50 percent, and farms with 50 cows or more doubled in number (128, pp. 528-529).

This study provides a good example of budgeting analysis employing a variety of assumptions about the residual claimant and the cost of the operator's labor and management. Three alternative forage harvesting techniques were considered, along with two alternative wage levels ($1,500 and $2,000) for regular hired labor. The residual claimant was initially assumed to be entrepreneurship. Operator labor and management were initially valued at $2,000 per year, but this value was also set at levels varying from zero to $4,000 for purposes of comparison. Figure 12 shows the resulting average total cost curves using alternative schedules for the cost of the operator's labor and management.

Curve 1 shows how average cost varies with size of dairy farm when the cost of the operator's labor and management are held constant at $2,000 per year for all sizes. The left-hand portion of the curve is quite high, because the fixed costs are spread over relatively few units of output. As the size of firm increases, the curve falls sharply, reaching a minimum of $2.64 per hundredweight of milk on the 2-man farm with 70 milk cows.

Curve 2 shows that when the opportunity cost of the operator's labor and management increases with farm size, the 1-man, 34-cow dairy achieves an average total cost that is within a few cents per hundredweight of that achieved by larger



SIZE OF FARM	ASSUMED RETURN TO OPERATOR LABOR AND MANAGEMENT		
	1	2	3
A ONE MAN (PARTIALLY EMPLOYED)	$2,000	$1,000	NONE
B ONE MAN (FULLY EMPLOYED)	$2,000	$2,000	NONE
C TWO MEN (FULLY EMPLOYED)	$2,000	$3,000	NONE
D THREE MEN (FULLY EMPLOYED)	$2,000	$4,000	NONE

Figure 12

farms. The budget costs underlying curve 2 are identical to those of curve 1, except that the opportunity cost of the operator's labor and management is varied from $1,000 to $4,000 as the size of firm increases. Implicit in this cost schedule is the assumption that (a) a farmer who operates a large dairy has a higher opportunity cost or reservation price than one who operates a smaller dairy, or (b) an operator places a higher reservation price on his management services for coordinating and supervising a large dairy than for operating a small one. The average cost curve (curve 2) resulting from this assumption is considerably flatter than curve 1, where the cost of the operator's service is kept constant at $2,000.

Curve 3 is based on the operator's personal services valued at zero, implying that the residual claimant now includes operator labor and management as well as risk-taking. This is the shortrun cost curve as viewed by a dairyman who places no reservation price on his own labor and management and considers his opportunity cost to be zero because of limited employment possibilities. This is also the relevant average shortrun cost curve for a person with a full-time off-farm job, who uses the dairy enterprise as a supplementary source of income. In this case, the operator would correctly value his personal services at zero in calculating the average total cost of producing milk, if he places no reservation on the time he spends on the dairy enterprise. Curve 3 reaches its minimum point of $2.21 per hundredweight of milk with the 1-man, 35-cow dairy farm. The farmer could remain in production indefinitely, meeting all out-of-pocket costs and depreciation, if the price remained at this level. But he would receive no return for his labor, management, and risk-taking. Family living expenses and debt repayment would have to be met from the return to owned capital and from other sources.

Iowa Dairy-Cash Grain Farms

A study conducted by Barker and Heady in 1960 considered 1- and 2-man farms in Iowa producing milk and cash-grain crops (3). Herd sizes up to 64 cows were analyzed using linear programming to select the optimum crop rotation. Technologies analyzed included the stanchion barn system and four parlor systems: 4-abreast, stanchion parlor, 3-stall, 6-stall, and herringbone. The residual claimant included operator management and risk-taking. It was found that, on a 1-man farm with 14 cows, 156 acres of corn-corn-oats-meadow rotation, and $77,000 of capital (including livestock), gross income would just cover all costs--including the opportunity cost of the operator's labor valued at $2,500 per year, plus 5 percent interest charged for fixed capital and 7 percent for operating capital. With this size of farm, the operator would be fully employed, and expansion in farm size would require hiring another full-time worker. The wages of a hired man were assumed to be $2,500 a year.

The 2-man farm achieved the break-even point at a herd size of 24 cows, with 300 acres of cropland and more than $100,000 of investment. Beyond this size, average cost continues to decline sharply until a herd size of 32 cows is reached (fig. 13). At this size, the cost:revenue ratio is slightly over 0.90, and most of the cost economies have been attained. Only a slight reduction in the cost:revenue ratio is experienced as farm size is expanded to 58 cows, 470 acres of cropland, and $192,000 of capital. Beyond this size, with the labor supply held at 2.25 man-years, the average cost curve for the Iowa dairy-cash grain farm turns upward.

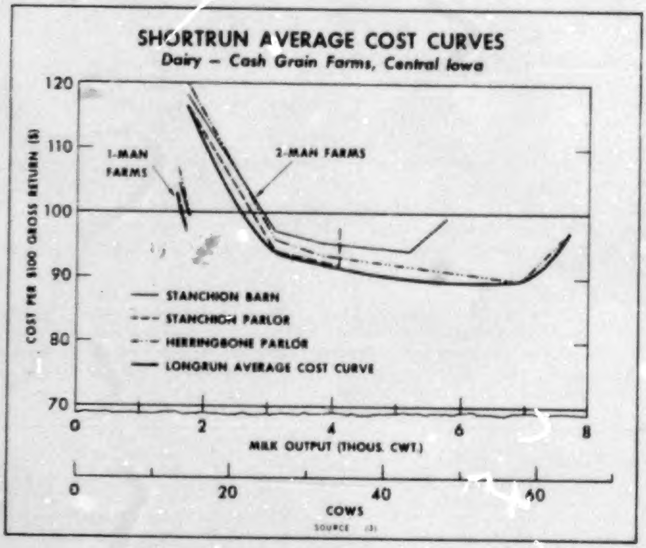


Figure 13

Very small farm sizes are depicted as being quite inefficient. This is partly because the firm is viewed in the conventional way, as simply a producer of farm products. Consequently, the cost of the operator's labor ($2,500) and the cost of the other fixed resources are spread over relatively few units of output, leading to a high average total cost. This formulation is correct for farmers who operate small farms and have no other source of income. But in real life, the operators of many such small dairy farms also engage in some custom work or have off-farm jobs. If the small dairy farm is viewed as a goods-and-services firm, not all of the annual cost of the operator's labor would be necessarily charged against the farm enterprises.

Taking all these income sources together, the small dairy farm in real life probably is not as inefficient as the sharply sloping envelope curve would imply. Nonetheless, the number of Iowa farms with fewer than 30 milk cows decreased sharply during the 1950's, while the number with 30 to 74 milk cows nearly tripled. Large dairies (75 cows or more) increased by only 38 percent during the decade (128, pp. 528-529).

Arizona Dairies

Martin and Hill in a 1962 study attempted to provide an insight into the nature of the right-hand portions of the envelope curve for dairies (84). Dairy farms ranging in size from 30 to 611 cows, with a labor supply of from 1 to 13 men, were surveyed.

Initially, average costs were calculated for synthetic dairy firms, assuming management and production per cow typical of each size group. Figure 14 shows that the average costs (curve 5) declined sharply up to a herd size of about 150 head, falling gradually to a minimum of $4.86 per hundredweight of milk for a herd size of 250 to 350 head, and then rose to $5.27 per hundredweight as herd size approached 600 head.

For comparison, the budgets were recalculated, assuming above-average management and holding production at 12,000 pounds per cow, but still using the barn system typical of each size group. The resulting average cost curve (curve 4) was considerably lower and flatter than with typical management and production, reaching approximately minimum average cost of $4.68 per hundredweight at a herd size of 150 head, with a 3-man labor force. Average cost was found to be nearly constant over a wide range of farm sizes, from 150 cows to the largest size analyzed (600 cows), with the labor supply varying from 3 to 12 men, and with value of investment rising from about $100,000 to more than $350,000.

To establish the characteristics of the synthetic firms, a total of 37 carefully selected dairies were arranged in six size groups, depending on each dairy's milk

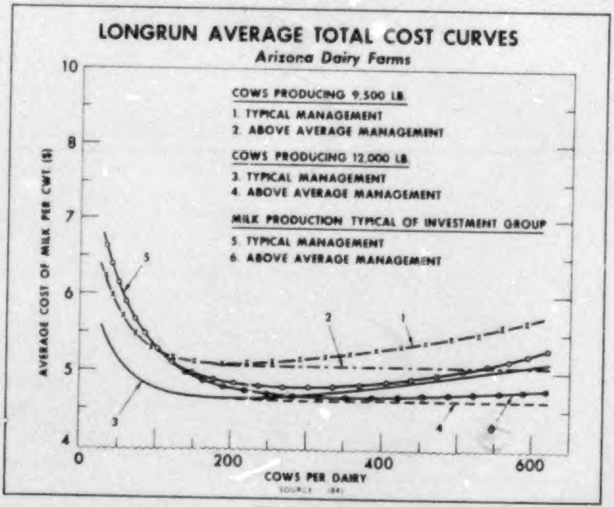


Figure 14

base (quota). Typical combinations of land, improvements, and dairy equipment were used to form a "representative" dairy farm for each of the six size categories. Each typical situation was adjusted to eliminate excess capacity, based on the carrying capacity of the milk barn and bulk tank. Investment costs used in calculating interest, depreciation, taxes, and insurance were based on current replacement costs. Yearly salary for hired labor was calculated at $4, 800, including perquisites of about $725. Operator labor and management were included with risk-taking in the residual claimant.

Production per cow and cow prices were found to vary with herd size. A variety of assumptions were employed in the budgeting analysis to indicate cost curves with high-producing versus low-producing cows.

Survey data indicated that management difficulties typically began occurring near a herd size of 150 to 175 cows. This problem was manifested in three ways: (1) Feed waste increased with herd size; (2) it became difficult to vary the level of grain feeding relative to each cow's production as additional cows were added, because of the variation among cows, and (3) the manager's supervision and coordination duties became so difficult as the herd size and labor force increased that he had no time to look for savings in purchasing feeds. This seems to be an example of diseconomies of size. However, if the herd sizes and resource situations examined in this study had included the possibility of hiring additional management services and specialized purchasing personnel, some of these management problems might have been overcome, though probably with some rise in management costs. Type of milking barn on the survey farm varied with herd size. Stanchion barns were typical of dairies with fewer than 100 cows. Bucket-type milking machines were used on dairies ranging from 30 to 60 cows. Dairies with 60 to 100 cows used pipeline instead of bucket milkers. Milking parlors were typically found only on farms with more than 100 cows. The 3-stall, side-opening parlor was commonly used by 100- to 150-cow dairies. Walk-through parlors were used by most of the dairies with from 150 to over 600 cows. These typical milking barn systems were assumed in constructing the budgets for the different dairy sizes.

The analysis did not consider alternative milking-barn technologies for each size group. The herringbone parlor was not considered for any size group. Results of other studies indicate that even for dairies as small as 40 cows the milking parlor is considerably more efficient in the long run than the stanchion barn, and that the herringbone parlor is more efficient than other parlor systems in many cases (17, 3). Therefore, the envelope curve which the planning firm in Arizona should consider is probably lower and flatter than suggested by the curves presented here, which reflect "typical" barn technologies for each size group. Employing advanced technology, the Arizona dairy farmer could probably achieve highly efficient production and realize most of the economies of size at a much smaller herd size than the 150-cow size indicated in this study.

Even so, the cost-efficiency relationships derived in this study are consistent with trends shown in the 1959 Census of Agriculture (128). The number of Arizona farms having less than 75 milk cows declined sharply during the 1950's, the number of farms with 75 to 99 cows remained stable, and dairies with 100 head or more tripled in number, rising from 40 to 126 farms. In 1959, five Arizona dairies had more than 500 cows.

Minnesota Dairies

Buxton conducted a completely synthetic analysis of Minnesota dairy farms in 1964, using linear programming to select the least-cost complement of machinery and the optimal farm plans for herd sizes up to 90 cows (17).[22] Alternative farm enterprises considered were hogs, corn, and soybeans. The dairy enterprise accounted for at least 60 percent of gross income on the synthesized dairy farms. Several alternative housing and milking arrangements were considered. One-man systems included stanchion barns and three sizes of herringbone parlors (double-4, double-5, and double-6). The only 2-man system analyzed was a double-8 herringbone parlor. Operator labor and management were included with risk-taking in the residual claimant.

Virtually all the economies of size were achieved by a 1-man, 48-cow dairy, using a double-6 herringbone milking parlor (fig. 15). The farm plan called for more than $160,000 of investment capital, including 290 acres of land and a 3-plow tractor and complement of machinery. Average total cost per dollar of gross income was about $0.84 at this point, with a total return to the operator's personal services of almost $5,600.

The 2-man dairy achieved a slightly lower cost:revenue ratio of 0.82 with an 87-cow, 490-acre dairy farm. Net operator income was about $11,000 and resource requirements included more than $260,000 of investment capital.

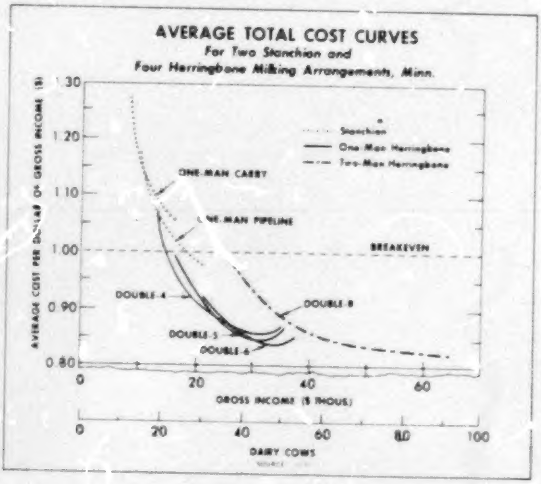


Figure 15

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[22] Buxton is currently examining larger dairies--over 90 cows.

These results are relevant to the planning dairyman, because the analysis considered the highly efficient new milking-parlor technologies. The 1-man dairy can achieve considerable reductions in average cost by expanding herd size to about 48 cows. Only slight reductions are achieved as herd size is doubled and a regular laborer is hired. But because of larger volume, the total profit accruing to the 2-man dairy is about double that accruing to the 1-man unit.

During the 1950's, the number of Minnesota farms with fewer than 20 milk cows declined sharply. Number of farms with 20 to 29 head nearly doubled, and those having 30 to 99 milk cows quadrupled. The number of very large dairies remained small: in 1959, there were only 49 Minnesota farms with 100 or more milk cows, compared with 25 farms in 1950. Thus, it appears that although many Minnesota dairy farms are tending toward the more efficient and more profitable herd sizes, very few are venturing beyond the 100-cow size.

Results of the Four Dairy Studies

Results of the four studies discussed in this section are not directly comparable. First, the assumptions and procedures varied from one study to the next. Different depreciation schedules, salvage values, interest rates, and other input prices were used, and the studies varied as to whether operator labor and management were included in the residual claimant. Second, no common measure of average total cost is available. The cost per hundredweight of milk as presented in the New England and Arizona studies is not directly comparable with the cost:revenue ratio of the multiple product farms analyzed in the Iowa and Minnesota studies. Calculating the cost per hundredweight of milk for a multiple-product farm (as in the Iowa study) involves an arbitrary allocation of fixed costs to the dairy enterprise. Several alternative (and equally valid) criteria for allocating fixed costs are available, and each may give a slightly different answer. This difference in procedure further confounds the comparisons.

A third and more serious reason why the results of these four studies cannot be directly compared is that they differed in the degree to which the synthetic-firm economic-engineering approach was used. The Iowa and Minnesota studies considered modern milking parlor arrangements for all dairy sizes, not limiting the resource combinations to those found on existing farms. The Arizona study considered only the typical barn technologies for each size group as they were observed in the sample dairies. Likewise, the New England study considered only those technologies in use at the time (about 1950); these results are not applicable to today's planning firm.

The Iowa and Minnesota studies examined 1-man and 2-man dairies with herd sizes of less than 100 cows. Most of the economies of size were found to be attainable by a 40- to 50-cow dairy farm, provided the operator had sufficient management ability and could gain control of more than $150,000 of investment capital. The Minnesota study indicated that the 1-man dairy farm could realize little, if any, increase in efficiency by doubling farm size and hiring an additional worker, but the increase in volume would give rise to considerably higher profit.

In examining larger dairy farms, the Arizona study showed that resource variability became troublesome with a herd size of about 150 head, as it became difficult for the manager to see that each cow was fed according to her production. Also, as the supervision and coordination problems increased with the size of herd and the labor force, management experienced increasing difficulty in coping with feed price uncertainty, because there was not enough time for "shopping around" in buying feed. Thus, the larger Arizona dairies show how resource variability and uncertainty lead to serious problems for the limited coordination and supervision resources in the individual firm.

None of the empirical studies considered the possibility of hiring additional management resources. Nor did they consider the use of modern milking and housing systems for very large dairy farms. We do not yet know whether the increased complexity of a large, modern, well-organized dairy farm would require disproportionate increases in management inputs and costs. However, the 1959 Census of Agriculture (128) shows that the number of 30- to 100-cow dairies is increasing more rapidly than the number of larger dairies, and that relatively few firms are attaining the very large herd sizes. Thus, the survivorship principle (that only the most efficient sizes survive in the long run) suggests that very large dairies are not inherently more efficient than medium-sized dairies.

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